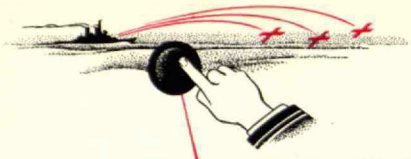
TECHNOLOGY REVIEW

May 1954

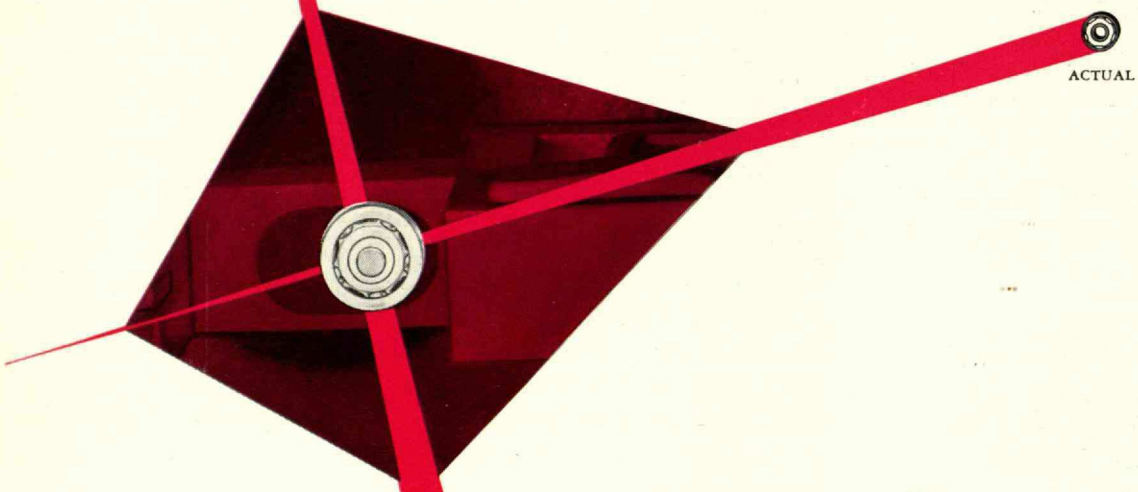
technology
review
Published by MIT



HERE'S HOW KETAY FIRE CONTROL RELAYS

keep naval guns "ON TARGET"

. . . with MPB bearings



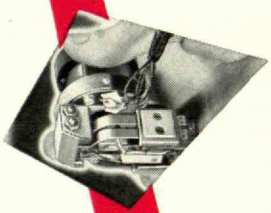
ACTUAL SIZE MPB 3C

accurate concentricity

of miniature bearing roller guides

increases relay sensitivity

and dependability



Fire control relay designed and manufactured by Ketay Manufacturing Corporation of New York.

OPERATING CONDITIONS — maximum sensitivity and consistency of response depend on free-rolling, concentrically accurate bearings . . . bearings serve as rollers and guides for rotating armature shaft which is displaced right and left to close desired circuits . . . unit actuated by 3 to 40 volts. CRITICAL — low-friction bearing rotation . . . ability to withstand 2,000 ft.-lbs. shock (equal to recoil of 16 in. naval guns), plus temperature changes from −55° C to +71° C . . . long wear and attention-free bearing operation. RESOLVED — by use of MPB No. 3C, radial retainer bearing.

In any problem involving miniaturization of precision mechanisms, when accuracy and dependability are essential, it pays to specify MPB miniature ball bearings. Each MPB bearing is the product of exclusive production processes, designed to hold ultra-precise tolerances . . . give long, trouble-free operation.

For design ideas, get the most complete information ever offered on miniature bearings. Request, on your letterhead, MPB catalog —54d.

see our catalog in
PRODUCT DESIGN FILE
or write for copy

Miniature *Precision* Bearings, Inc. MPB Keene, New Hampshire

THE TECHNOLOGY REVIEW, May, 1954, Vol. LVI, No. 7. Published monthly from November to July inclusive at Emmett Street, Bristol, Conn. Publication date: twenty-seventh of the month preceding date of issue. Annual subscription $3.50. Canadian and Foreign subscription $4.00. Entered as second-class matter December 23, 1949, at the Post Office at Bristol, Conn., under the Act of March 3, 1879.

Many processes are available to the refiner who is projecting a refinery from a given crude. The selection of these various processes at each step of the way is obviously important — both economically and to meet required product specifications.

Lummus offers a complete selection of processes for the refiner's requirements on quality of products, costs of investment and operation.

Why not take advantage of Lummus experience and the availability of these processes when you consider new or expanded facilities.

THE LUMMUS COMPANY, 385 Madison Ave., New York 17, N. Y. *Engineering & Sales Offices:* New York, Houston, Montreal, London, Paris. *Sales Offices:* Chicago, Caracas. *Heat Exchanger Plant:* Honesdale, Pa. *Fabricated Piping Plant:* East Chicago, Indiana.

LUMMUS®

DESIGNING ENGINEERS AND CONSTRUCTORS FOR THE PETROLEUM AND CHEMICAL INDUSTRIES

THE TABULAR VIEW

Technology's Architecture. – Since its founding in 1865, M.I.T. has occupied three different locations, each of which was marked by a totally different kind of architecture. In 1916 when M.I.T. moved to its new location in Cambridge on the Charles River and outgrew its nickname of "Boston Tech," the inspirational genius of Welles Bosworth, '89, provided the Institute with architectural surroundings which borrowed heavily from the classicism of Greece and Rome. By 1938, or thereabouts, structures of a modernistic type began to make their appearance on the Cambridge campus. As recorded by CAROLINE SHILLABER in the second of a two-part article (page 343) modernism in the architecture of M.I.T. buildings came into full bloom with the construction of new – and much needed – buildings in the postwar period. Certainly the new Kresge auditorium (now under construction) and the chapel (soon to be built) are as breath-taking in their architecture as Baker House, which has already seen several years of service as a student dormitory. A graduate of Smith College, Miss Shillaber is librarian of the Arthur Rotch Memorial Library of Architecture at M.I.T.

Perpetual Life? – JAMES A. TOBEY, '15, a frequent contributor to The Review on matters of public health and related topics, takes time out from a busy life to discuss (page 349) the possibility of extending man's life span beyond the Biblical "three score and ten" years. In his present article, Dr. Tobey is not concerned with the reasons one might give for wishing to live to be 100 years old or more; he is satisfied merely to draw whatever conclusions are reasonable concerning the possibility of achieving this end. Much progress has already been made in overcoming mortality among infants and children. Moreover, history records many cases of those whose life span has extended a full century. Now that more attention is being directed toward the diseases of middle life and old age, may we not expect a significant lengthening of the average life span? Dr. Tobey received the S.B. and Dr.P.H. degrees from M.I.T. in 1916 and 1927, respectively. He received the LL.B. degree from Washington Law School in 1922, and the M.S. degree from the American University in 1923.

Webster Lecture. – PROFESSOR ARNOLD TUSTIN, distinguished British engineer and Head of the Department of Electrical Engineering at the University of Birmingham, England, is the first visiting professor to occupy the Webster Chair of Electrical Engineering at M.I.T. In this capacity, Professor Tustin delivered the inaugural lecture of the Webster professorship which The Review is pleased to bring to its readers (page 351). In his Webster lecture, Professor Tustin urges that the university of the future be primarily concerned with the training of well-rounded, competent individuals who will be willing and able to apply their knowledge for the benefit of

(*Concluded on page 334*)

BEYOND THE HORIZON....

Higher and higher the speeds; greater and greater the stresses.

To match needs which are still beyond the horizon, the engineer is increasingly urging the metallurgist to supply new materials.

The more efficient engines of today rely upon the use of temperature-resisting molybdenum-containing alloys; the jet engines of the future, with still greater stresses and higher temperatures, must rely even more upon Molybdenum.

Climax furnishes authoritative engineering data on Molybdenum applications.

Climax Molybdenum Company

500 Fifth Avenue · New York City 36 · N.Y.

THE TABULAR VIEW

(*Concluded from page 332*)

mankind on a global scale. He believes that electrical engineers can make an important and significant contribution in this field. As if to prove his point, Professor Tustin has recently published a book in which the feed-back principles, so commonplace in electrical engineering, are applied to examine our overall economic system. After graduation from the University of Durham in 1920, Professor Tustin gained extensive and varied experience in the electrical manufacturing industry. He played an active part in those developments leading to the adoption of 1,500- and 3,000-volt direct current as standard voltages in transportation systems which made possible the modern lightweight trolley-bus motor. During World War II he was active in the development of the Metadyne, a method of control for such applications as the automatic aiming of anti-aircraft guns, and in the development of gyroscopic stabilizers for guns in tanks.

MAIL RETURNS

Old Rogers

FROM WILLIAM R. GREELEY, '02:

Historic styles in architecture are of academic interest only, but to keep the academic record straight, dear old "Rogers" (page 299, April, 1954, issue of The Review) is not Greek revival but Renaissance (English-French-American).

The article is very interesting and promotes nostalgia. Next to Engineering C was a small building called "The Tech Union," the first social building. Is there a photograph of that anywhere? I was the architect and didn't get a picture and it was soon demolished. I'll bet it was terrible.

Boston, Mass.

Helping the "stars" to shine

A tiny off-stage "sun" brings you brighter and better movies

As YOU SEE the Hollywood "stars" on the screen of the darkened theater—perhaps in 3-D—you can thank a man-made miracle of light—the carbon arc.

This brilliant light comes from tiny carbons not much larger than pencils. Yet their light is brighter than the sun itself—enlarging the tiny pictures on the film as much as 300,000 times!

THEY GIVE YOU THE RAINBOW—Besides the brilliance that brings you clear, sharp moving pictures, these carbons have a light quality almost exactly like that of the sun. This makes possible the production and showing of pictures with all colors of the rainbow.

LIGHT YOU DON'T SEE—The rays from these carbons go beyond the movies into places most of us never see. They reveal quickly how long a new paint will last, and whether colors will fade from new fabrics. They also tell scientists the exact chemical composition of many materials.

BETTER AND BETTER—Making and constantly improving hundreds of carbon and graphite products for industry and science is one of the many ways in which the people of Union Carbide help serve all of us.

STUDENTS AND STUDENT ADVISERS: *Learn more about career opportunities with Union Carbide in* ALLOYS, CARBONS, CHEMICALS, GASES *and* PLASTICS. *Write for booklet B-2.*

UNION CARBIDE
AND CARBON CORPORATION

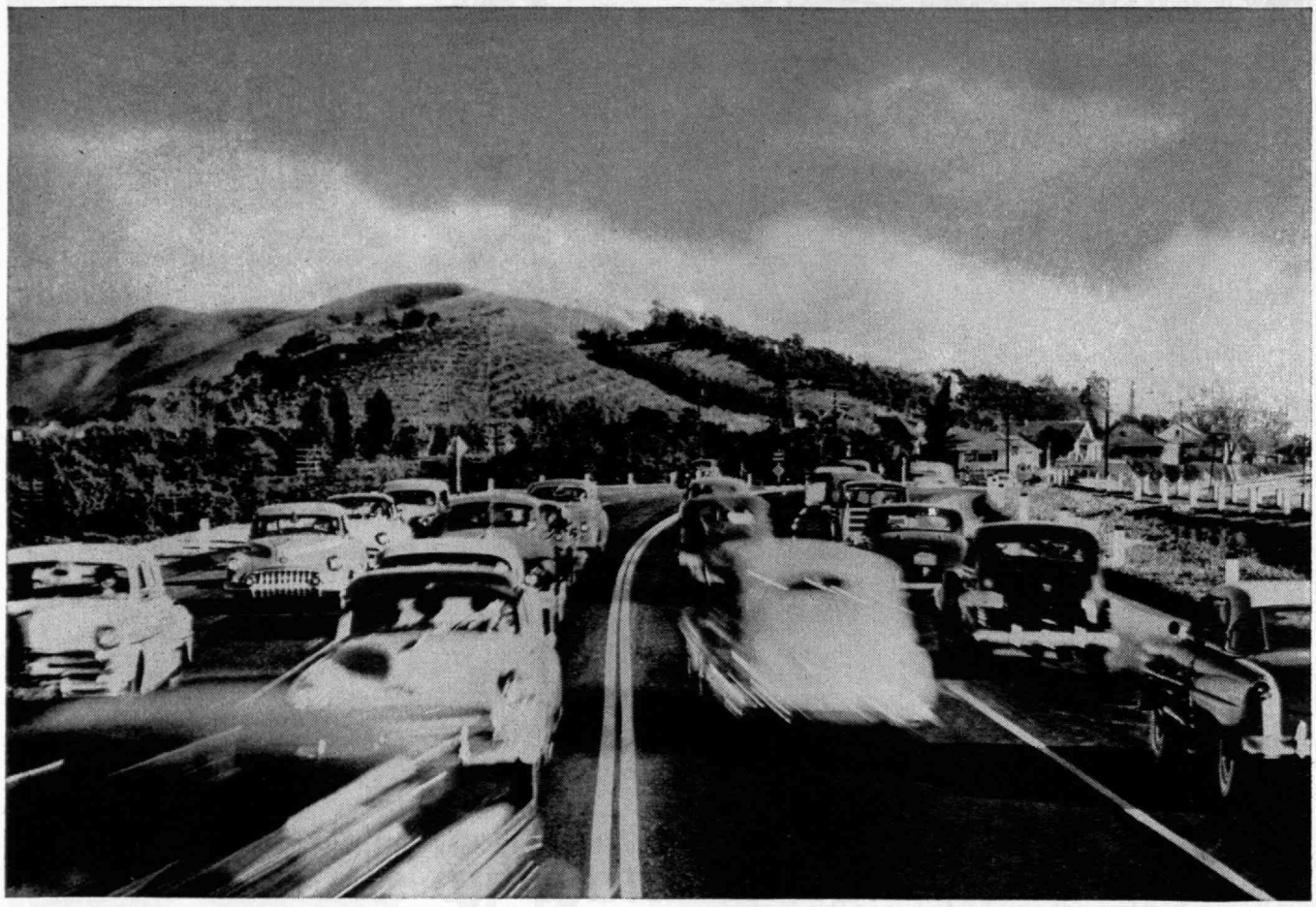
30 EAST 42ND STREET UCC NEW YORK 17, N. Y.

In Canada: UNION CARBIDE CANADA LIMITED

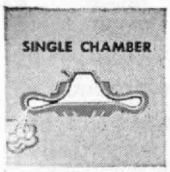
UCC's Trade-marked Products include

NATIONAL Carbons — EVEREADY Flashlights and Batteries — BAKELITE, VINYLITE, and KRENE Plastics — ELECTROMET Alloys and Metals — PYROFAX Gas — PREST-O-LITE Acetylene — HAYNES STELLITE Alloys — DYNEL Textile Fibers — UNION Carbide — PRESTONE Anti-Freeze — LINDE Oxygen — ACHESON Electrodes — SYNTHETIC ORGANIC CHEMICALS

Sudden blowouts can mean sudden death on today's crowded highways!



Be safe with Double Chamber LifeGuard Safety Tubes



When a single chamber tire or single chamber tube blows out, you lose *all* the air, your wheel drops to the rim in a split second! This sudden drop can swerve your car out of control, off the road, or head-on into on-coming traffic!

You'll be lucky to escape with nothing more serious than a repair bill.

But with double chamber LifeGuards in your tires, you have a life-saving reserve of air in the *inner* chamber! Instead of dropping as much as 6 inches, your wheel drops only a couple of inches; you have plenty of time to come to a safe, straight-line stop!

Protect yourself and the ones you love from possible injury or death.

Cost less because they're re-usable! You continue to enjoy blowout-safe driving on your LifeGuard Safety Tubes through three or more sets of tires, for 100,000 or more miles. Because they last longer, they cost much less per mile. New LifeGuards are available with puncture-sealant, too.

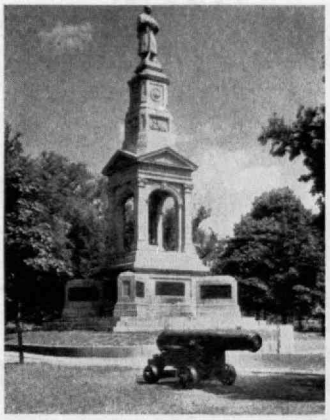
See your Goodyear dealer and let him show you the value of having LifeGuard Safety Tubes on *your* car. Goodyear, Akron 16, Ohio.

See TV's Great Dramatic Show, "The Goodyear TV Playhouse," Alternate Sunday Evenings, NBC-TV.

GOODYEAR

LifeGuard, T.M.—The Goodyear Tire & Rubber Company, Akron, Ohio

Detail of Park Street Church (April Contents page), at Tremont and Park Streets, Boston, is regarded as one of the finest brick and glass structures ever built.



Raymond E. Hanson

How Well Do You Know Boston?

Shown here are memorials from two wars in which our nation was engaged. Can you identify them and give their location? If not, see Contents page for next month.

THE TECHNOLOGY REVIEW

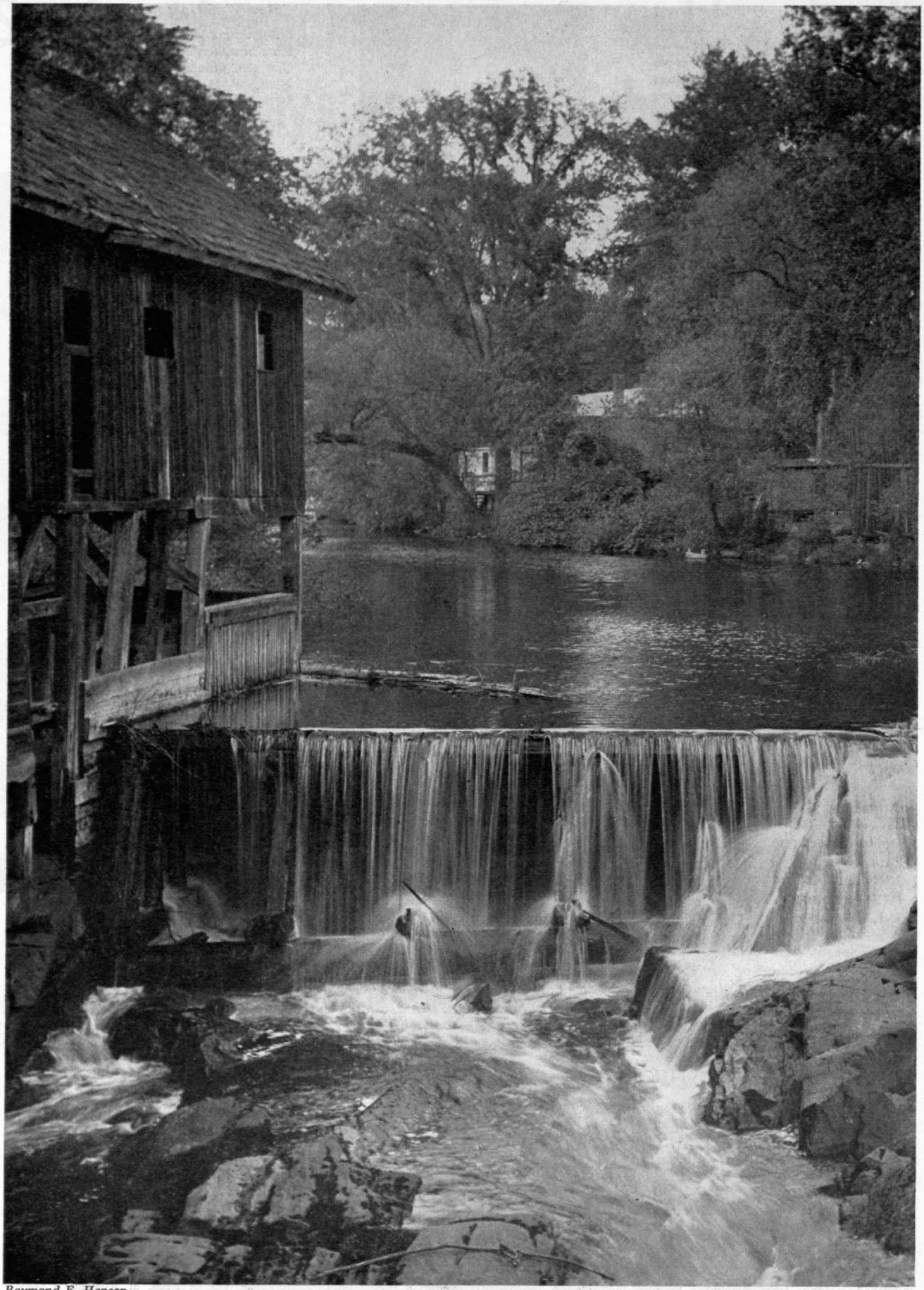
TITLE REGISTERED, U. S. PATENT OFFICE

EDITED AT THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

CONTENTS *for May, 1954*

Vol. 56, No. 7

Published monthly from November to July inclusive on the twenty-seventh of the month preceding the date of issue, at 50 cents a copy. Annual subscription, $3.50; Canadian and foreign subscription, $4.00. Published for the Alumni Association of the M.I.T.: Horatio L. Bond, President; H. E. Lobdell, Executive Vice-president; Dwight C. Arnold, Richard S. Morse, Vice-presidents. Donald P. Severance, Secretary-Treasurer. Published at Hildreth Press, Inc., Bristol, Conn. Editorial Office, Room 1-281, Massachusetts Institute of Technology, Cambridge 39, Mass. Entered as second-class mail matter at the Post Office at Bristol, Conn. Three weeks must be allowed to effect change of address, for which both old and new addresses should be given.



Raymond E. Hanson

Old Mill and Mill Dam

Reminiscent of an earlier era in American technology, this ancient structure at Weare, N.H., retains the charming dignity of peaceful simplicity.

THE
TECHNOLOGY
REVIEW

Vol. 56, No. 7 May, 1954

The Trend of Affairs

The Iceman Comes

NOWADAYS the iceman comes mostly just to deliver ice cubes and crushed ice. The cooling for which he used to deliver large ice cakes is generally provided today by mechanical refrigeration. But ice in cube or crushed form is still needed to chill beverages. Also crushed ice is used to refrigerate a few foods, principally sea foods, that keep better in contact with ice than they do when placed in mechanical refrigerators.

Ice cubes are delivered to the consumer sometimes in covered fiberboard drums or closed paper bags, more often in bulk. Crushed ice is generally prepared by grinding ice cakes — usually the standard 300-pound size — through a power-driven chipping machine attached to the delivery truck. Crushing is customarily done on the street, in front of each customer's doorway. Crushed ice and bulk ice cubes are carried into the customer's premises in cloth bags, or in barrels or buckets of wood or metal.

These operations, of crushing ice and delivering crushed ice and ice cubes, are an everyday sight on city streets. Anyone having a sanitary point of view witnesses them with some alarm; for they are usually done with a casualness such as one expects to see in the handling of coal or such a commodity; certainly these operations are not conducted with the care and cleanliness appropriate in the handling of any material intended for human consumption.

Alarm is magnified when one observes the placing of ice in glasses in some restaurants, soda fountains, or bars. Often the fingers are employed; there is a temptation to do this because the ice is troublesome to handle with any implement. Scoops may be used; but they often are grasped so that the hand comes in contact with the ice in the bin, that in the scoop, or with both.

Recently published reports show that concern over the sanitary quality of ice cubes and crushed ice is far from groundless. Numerous samples of such ice, taken at the point of consumption, were found to be heavily contaminated with bacteria, including fecal types and others usually indicating pollution of human origin. Quantities of foreign materials were found among the ice; sand, clay, fibers, threads, bits of finger nail polish, insect fragments, rodent hairs, and wood splinters.

Where does this contamination originate? In commercial ice plants, ice is manufactured from drinking water of uniformly high sanitary quality. The plants themselves are operated in a sanitary fashion, under supervision of local health departments. Hence it follows that the pollution found in cube and crushed ice resulted from abuse during crushing, delivery, and dispensing.

Although it is true that no outbreaks of disease have been traced to contaminated ice, there is potential danger whenever bacterial contamination, especially of fecal types, exists in material entering the human digestive tract. Moreover modern public health philosophy holds that the consumer is entitled to foods and beverages delivered in such a way as to be free from extraneous materials.

It is reassuring to learn that steps have been taken through two different approaches to eliminate contamination of cubed and crushed ice. The first approach is that of education; by showing icemen, restaurant employees and others involved in handling it, how to handle ice so as to avoid pollution of foodstuffs.

The other approach is chlorination of ice at the point of use. Sodium hypochlorite is used to prepare a stock solution. The ice cubes or crushed ice are covered with water to which the stock hypochlorite solution has been added in a proportion to establish

a chlorine level of two parts per million. Bacterial contamination is effectively destroyed; and beverages chilled with such ice are free of detectable chlorine flavor or odor.

Elements in the Earth's Crust

GEOCHEMISTRY is concerned primarily with the chemistry of the earth. One of its principal tasks is to provide a basis for determining the way in which elements are distributed in specific geological materials, such as rocks, for example. In part, the problem is a statistical one which can be answered only by analyzing many specimens of a given type of rock from a fairly large area. Determination of the distribution of elements in geological materials is not only of considerable scientific interest, but also has technological utility in exploring and evaluating possible ore reserves more efficiently than has been possible.

One prime goal of the research in geochemistry carried out by Louis H. Ahrens, Assistant Professor of Geology, and his co-workers in the Department of Geology and Geophysics, and supported, in part, by the Office of Naval Research, has been to establish the statistical nature of the distribution of elements in rocks and minerals. For this investigation, a dozen elements have been determined spectrographically in many specimens of igneous rock from New England and Canada. In all, some 812 quantitative observations have been made. As shown in Fig. 1, the frequency distribution plots of each element assume positive skewness when plotted in the usual manner, and hence the distribution is not the normal or Gaussian one. The distribution takes on the normal or Gaussian form, however, if the logarithm of the concentration of an element is made the variate, as shown in Fig. 2. A plot such as that shown in Fig. 2 is called a lognormal plot.

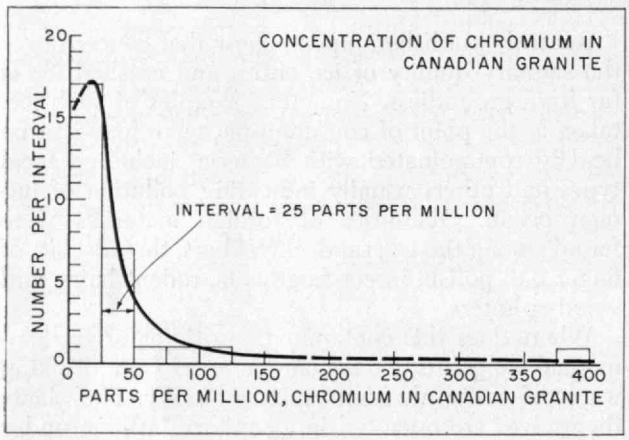


Fig. 1. Linear plot of concentration of elements in rocks and minerals results in positively skewed curve of frequency distribution. In the past, it has been usual practice to make plots with linear abscissas.

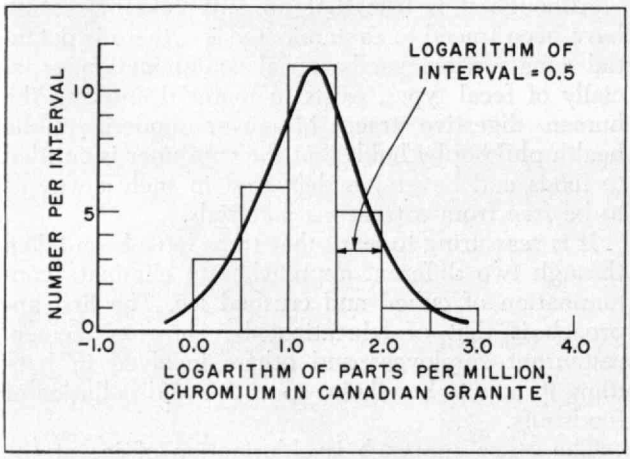


Fig. 2. Logarithmic plot of concentration elements in rocks and minerals yields a Gaussian type of frequency curve. The new point of view makes possible the evaluation and exploitation of possible ore reserves on a more realistic basis than was the practice heretofore.

The Gaussian distribution for the logarithmic plot has been found to hold for all elements, and leads to an enunciation of a fundamental law of geochemistry, namely, the concentration of an element is lognormally distributed in specific igneous rocks.

Some interesting consequences arise from this fundamental law. The new point of view enables us to compare and predict the dispersion, or variation of concentration, of elements. Some elements, of which gallium is a good example, show extremely small variation, whereas others, such as chromium, show enormous variation. Moreover, the new law tell us that, in geological materials, the abundance of an element (as given by the arithmetic mean of all determinations) is always greater than the most frequent concentration, as given by the geometric mean. The difference is variable and is determined solely by the magnitude of the dispersion.

The fact that elements are lognormally distributed makes possible the evaluation and exploration of possible ore reserves more efficiently and on a more realistic basis than has previously been possible. For example, the large potential gold field in the Orange Free State is being surveyed by the new technique.

Castings as Good as Forgings?

ALUMINUM, in many forms, finds its way into almost limitless engineering applications, not the least of which is modern aircraft. On a tonnage basis, wrought aluminum represents today the lion's share of this engineering material; but castings are playing an ever increasing role which would, no doubt, double or triple almost overnight if the mechanical properties and soundness of aluminum castings were better and more dependable. It is to this end the foundry staff at M.I.T. has been working the last three years; the work is being done under contract between Frankford Arsenal, a unit of the United States Army, and the Institute's Division of Industrial Coöperation.

When engineers design aircraft, factors of safety are used for materials under high stress to insure against premature failure from some undetectable flaw in the material. For wrought aluminum, this factor is 1.5, and for castings considerably higher, sometimes as high as 3.0; this reflects a serious but not wholly inexplicable shortcoming of castings. While the original ingot from which wrought products are made is a casting, the squeezing and shaping inflicted upon this ingot in its travel through the rolling mill have the beneficial effects of (1) closing and welding any porosity present, (2) refining the grain structure,

and (3) breaking down and distributing any nonmetallic impurities which might be present, thus rendering them less harmful. A casting is used without these benefits of densification, breakdown of nonmetallics, and grain refinement. Thus imperfections reflect in full force upon the properties of engineering items made from castings. Reasons for these imperfections have not been clearly understood in the past, and in foundries, where castings are made, there has been poor control over the means of minimizing imperfections.

The search for factors responsible for the disparity in mechanical properties between cast and wrought aluminum has led directly to fundamental studies of the kinetics of alloy solidification. Of particular interest are the compounded ill effects of dissolved hydrogen, solidification shrinkage, and adverse mechanism of freezing on the size, shape, and distribution of microporosity in cast structures. Most aluminum alloys (1) exhibit a pronounced dendritic or "mushy" mode of solidification which drastically promotes the incidence of microporosity, (2) are capable of dissolving hydrogen from the air, the mold, or other sources of water vapor, and (3) suffer a large volume change (shrinkage) upon solidification. The situation is such that currently prevailing foundry techniques are unlikely to produce sand cast metal having even 60 per cent of the potential strength of some aluminum alloys. Complicating the picture is the fact that the degree of porosity required to halve the strength of an aluminum alloy may be invisible on a machined surface – the metal looks "sound."

Having isolated and evaluated the problems involved, the work at M.I.T. has proved castings can be controlled to yield mechanical properties fully equal to those of wrought material of the same composition. By controlling gas content of the molten metal, using controlled but fully practical molding materials and methods, and by designing the casting so it will freeze under conditions of favorable thermal gradients, the optimum properties can be obtained as shown in the table. These properties are equal to those of wrought

Property	Wrought Metal	Cast Metal
255 (95.5% Al; 4.5% Cu)		
Tensile strength in p.s.i.	58,000	55,000
Yield strength in p.s.i.	37,000	37,000
Per cent elongation	19	12
755 (90.4% Al; 5.5% Zn; 2.5% Mg; 1.6% Cu)		
Tensile strength in p.s.i.	82,000	78,000
Yield strength in p.s.i.	72,000	72,000
Per cent elongation	12	5
275 (95.46% Al; 4.5% Cu; 0.04% Sn)		
Tensile strength in p.s.i.		63,000
Yield strength in p.s.i.		52,000
Per cent elongation		8

aluminum of the same composition, even though the metallurgical grain size of the cast metal averages from 0.2 – 0.4 millimeter as compared to 0.1 millimeter for its wrought counterpart. Properties shown for castings have been obtained from metal cast under favorable, but fully practical conditions; values for wrought materials are taken from the *American Society for Metals Handbook.*

Current work comprises translation of this knowledge into practice so the aluminum alloy casting of the future will be a more dependable, high quality, engineering material. Thus, perhaps the sometimes lowly casting may yet merit, attain, and maintain its rightful place in engineering design.

The project is under supervision of Howard F. Taylor, 2–46, Professor of Metallurgy, and Clyde M. Adams, Jr., '49, Assistant Professor of Metallurgy. Michael B. Bever, '42, Associate Professor of Metallurgy, has acted as adviser to the project since its inception. William D. Walther, '50, Denis W. G. White, and George D. Chandley, '53, doctorate candidates in Metallurgy, are currently working on this project; Merton C. Flemings, Jr., '51, a recent doctorate student, conducted his thesis research in this field.

Energy and the Atmosphere

ENERGY flowing at the rate of several hundred billion horsepower from the day-to-day storms of our weather generates the great prevailing winds – such as the trade winds and jet streams – which encircle our globe. This conclusion, which upsets earlier theories of how the world-wide motions of the atmosphere are maintained, comes from a long-term research project in the Institute's Department of Meteorology. In due time, the M.I.T. meteorologists say, this new theory may take some of the uncertainties out of long-range weather forecasting.

Global wind statistics have been assembled and analyzed during the past five years by a team under the direction of Victor P. Starr, '38, Associate Professor of Meteorology, and including Edward N. Lorenz, '43, and Hsiao L. Kuo, staff members of the Division of Industrial Coöperation in the Meteorology Department, and Robert M. White of the Air Force Cambridge Research Center, which through its support made this project possible.

Their conclusion proposes, in effect, that the world-wide motions of the atmosphere are driven by what might be described as many small "heat engines." "These engines," says Professor Starr, "are the great storm areas which bring our day-to-day weather changes; their energy comes from the interaction of warm and cold air masses.

"As an effect of the earth's rotation," he continues, "this energy is then so organized as to be fed into and to maintain the zones of prevailing west and east winds which would otherwise die down because of friction. The rate at which energy is thus fed into these prevailing wind systems turns out to be several hundred billion horsepower."

According to Professor Starr and his associates, practically all of the traditional pictures have shown the atmosphere operating as a single huge heat engine. That is, the air has been generally considered as rising at latitudes near the equator and then at high altitudes moving toward the poles, with the return current flowing near the ground. The prevailing westerlies and easterlies were then explained as an effect of the deflecting force of the earth's rotation. The new theory means that the prevailing winds are in fact the result of the high and low pressure areas they carry across the land – a complex interrelationship of forces larger than any man has ever reproduced.

The M.I.T. research team studied wind measurements recorded routinely at over 250 weather stations thoughout the Northern Hemisphere – in the United

States, Canada, and Alaska, Europe, Africa, Asia, and ships at sea.

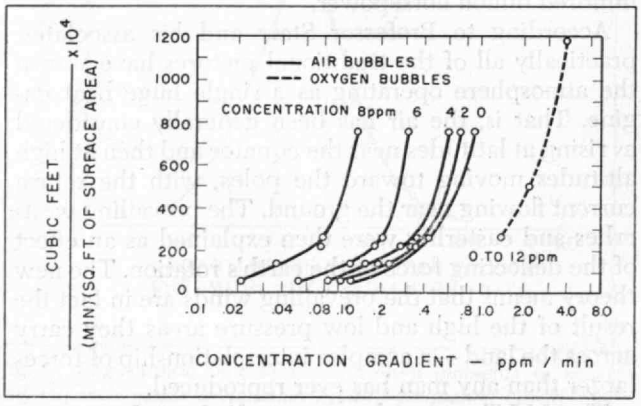
This information comes from free balloons released at these weather stations at frequent intervals, daily when possible. Some of these balloons carry radio equipment to report their information; others are followed from the weather stations by radar. The best of these balloon records show the winds in the various layers up to 10 miles high – through more than 90 per cent of the earth's atmosphere and its weather.

The raw material for the statistical studies at M.I.T. came from daily wind measurements made over more than one year's time, in more than 40,000 balloon ascensions – a total of about 200,000 wind measurements at different levels up to 10 miles, showing wind velocities up to 200 miles per hour. This kind of information about winds aloft, the M.I.T. group points out, has been available on a wide scale only since about 1949. Before that, not enough stations were equipped for measuring winds at high levels, and some of the techniques were practically unknown before World War II.

"Long-range weather forecasting," says Professor Starr, "requires knowing weather over an entire hemisphere. Thus this fundamental knowledge of the sources of our prevailing winds should contribute to more accurate long-term predictions. This same knowledge may help us to form theories which will clarify the behavior of the more localized weather phenomena which make up day-to-day weather."

Aeration Studies

One of the important methods employed for the treatment of sewage and industrial wastes is the activated sludge process. This type of treatment involves the aeration of organic wastes in an aeration tank by means of air bubbles generated from porous aluminum oxide diffuser plates located near the bottom of the tank. These bubbles serve the double purpose of providing dissolved oxygen to sustain the bacteria which feed on the gelatinous activated sludge and tank contents. In present aeration practice, the compression requirements for release of these air bubbles constitutes a major proportion of the total operational costs for plants of this type, and large volumes of air are needed to provide sufficient dissolved oxygen.



Gas flow requirements for maintaining a given initial concentration as a function of concentration gradient for air and oxygen bubbles.

In order to provide a more fundamental understanding of the mechanism of diffusion of oxygen from gas bubbles with the aim of securing greater efficiency in the solution of oxygen, since 1949 the National Institutes of Health, United States Public Health Service, has sponsored a program of basic research at the Hydrodynamics Laboratory of the Department of Civil and Sanitary Engineering, to accomplish these objectives. The investigation is under the direction of Arthur T. Ippen, Professor of Hydraulics, with the assistance of Charles E. Carver, Jr., research assistant.

The design of the experimental equipment is such that the primary variables involved in the aeration process, in other words, gas flow rate, bubble size, and liquid depth, may be accurately controlled. Bubbles ranging in size from 1.25 to 2.50 millimeters in diameter were dispersed through glass capillary tubes into a lucite column filled with tap water to various depths. The water is initially deaerated by circulation under vacuum, followed by "stripping" with nitrogen bubbles. Air or oxygen bubbles are then introduced through the capillary diffusers and the test is complete when the column becomes saturated with dissolved oxygen. The concentration of oxygen is determined by the standard Winkler test, as well as through the use of a continuously-recording oxygen meter utilizing either a dropping mercury electrode or rotating platinum electrode. The rate of rise of the bubbles is recorded and the bubble sizes are determined photographically.

Rates of oxygen absorption and absorption coefficients have been determined for a number of combinations of gas flow rate, bubble size, and water depths using both air and pure oxygen bubbles. It has been found that, for a given depth and diffuser, the amount of oxygen which is absorbed by the liquid is higher for lower gas flow rates than for higher ones. The use of an increased number of diffusers (to keep the flow rate per diffuser at a low value) is therefore desirable for higher flow rates in actual plant operation. The test data also indicate that for a given rate of gas flow the absorption per foot of column length is higher for lower depths than for higher ones. Since the diffuser head loss is fixed irrespective of water depth, the over-all efficiency will generally increase with increasing depths until diffuser losses are materially reduced in comparison to total compression requirements.

For a given rate of gas flow, greater absorption rates are obtained with small bubbles owing to the increased surface area available for oxygen transfer. For bubbles in the Stokian range the per cent absorption varies inversely with the cube of the bubble diameter. Ultimate increases in aeration efficiency must be looked for from methods of producing smaller bubbles with minimum power expenditure.

A practical application of the test data is shown in the accompanying figure from which the gas flow requirements for maintaining a desired concentration level of dissolved oxygen may be obtained in an aeration tank subject to a given concentration gradient or oxygen demand. The figure also clearly defines the range of concentration gradients which may be satisfied by aeration procedures.

Architecture of M.I.T. Buildings

Shortly before the Outbreak of World War II a New Era of Building and Expansion Was Begun to Meet the Institute's New Educational Needs

By CAROLINE SHILLABER

Part II

In Part I of Miss Shillaber's article, which appeared in the April, 1954, Review, she described the architectural style of the early M.I.T. buildings in Boston and the first ones to be erected in Cambridge. Part II, presented below, discusses the architecture of the Institute buildings beginning in the late 1930's.

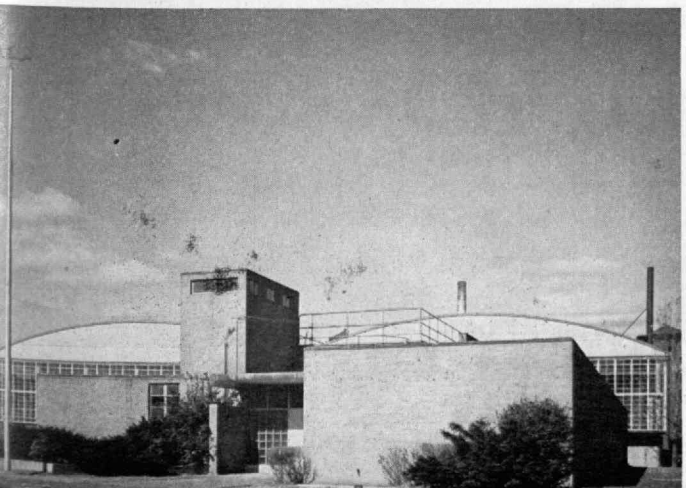
A NEW era in M.I.T. architecture was inaugurated about 1939 when the firm of Anderson and Beckwith began designing a series of laboratories and other buildings. By a careful plan of interior to provide maximum use with economy of space and maintenance, and by a thoughtful use of color that is a pleasant contrast to the usual monotone of academic walls, the newer buildings are distinguished by a form that is simple and unadorned. Lawrence B. Anderson and Herbert L. Beckwith are graduates from M.I.T. in 1930 and 1926, respectively, and both teach in the School of Architecture and Planning where Professor Anderson is also head of the Department of Architecture.

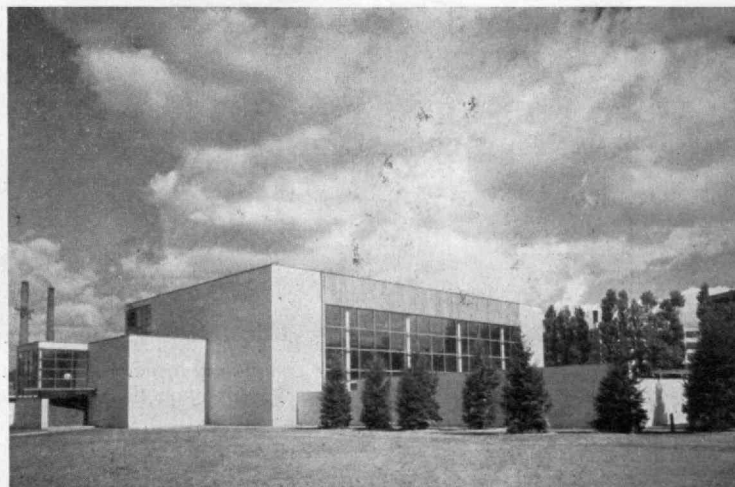
The eminently practical and serviceable Frank Harrison Briggs Field House put up in 1939, under a program for athletic and recreational facilities sponsored by the Alumni Association, was the first M.I.T. structure to be built according to designs of Anderson and Beckwith. Adjacent to the playing fields west of Massachusetts Avenue, it has a dark finish and angular shape that well symbolize strength and durability. Rooms, services, and lighting are expertly planned to provide pleasant and convenient accommodation for 432 men, with special quarters for visiting teams.

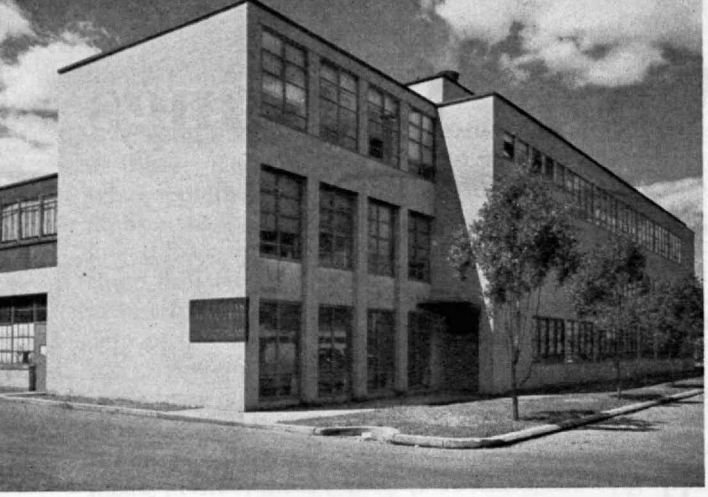
The following year Anderson and Beckwith built the Alumni Swimming Pool for the use of students and staff. In honor of their contribution to further expansion of athletic facilities, the pool is named for Technology Alumni. This is a fine looking building cleverly oriented; its southern wall is a huge window enabling the sun to shine on the entire water surface during the winter months. In addition to the pool of standard collegiate size (42 x 75 feet), there is a smaller, shallow practice pool (20 x 40 feet). There is also a gallery for more than 300 spectators and, of course, the necessary shower and dressing rooms. The color scheme of the interior in shades of pale yellow and blue is particularly successful, for it gives warmth to a building that would otherwise seem cold and cheerless. There is a small enclosed garden for sun-bathing on the south side of the pool.

The Sloan Laboratories for automotive and aeronautical engineering were also built in 1940 to provide additional space for studies which had been carried on in a smaller structure. The new laboratories are a fine example of contemporary design applied to utilitarian purposes. The smooth exterior of light brick is unadorned except for a black plaque indicating the nature of activities housed in this two-story building, which is constructed so that additional stories can be superimposed on the present structure. Except for

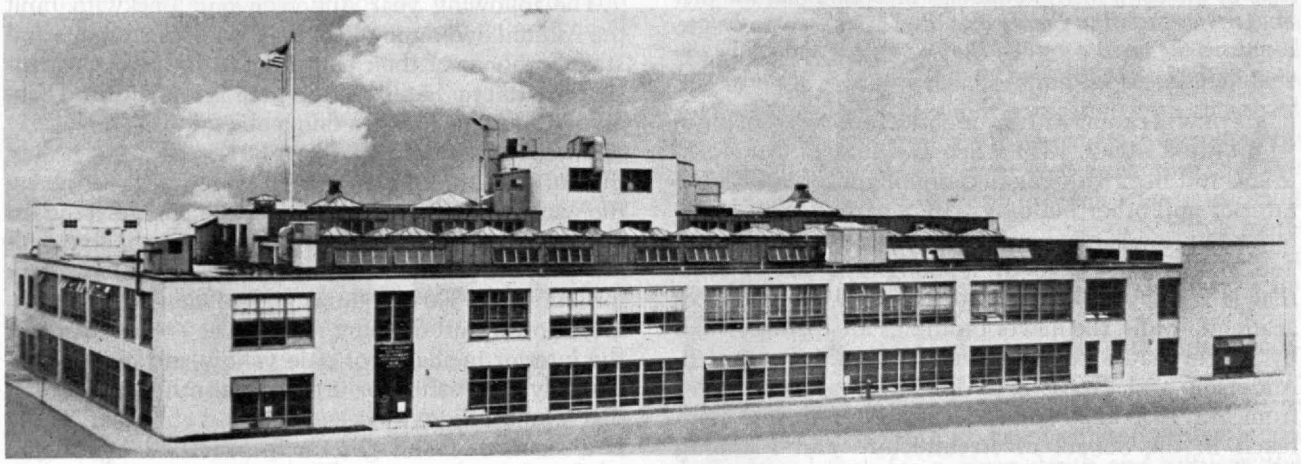
As part of a program to provide M.I.T. students with adequate athletic and recreational facilities, the Alumni Association sponsored the Frank Harrison Briggs Field House (left) *erected on the East Campus in 1939, and the Alumni Swimming Pool* (right) *built on the West Campus in 1940*







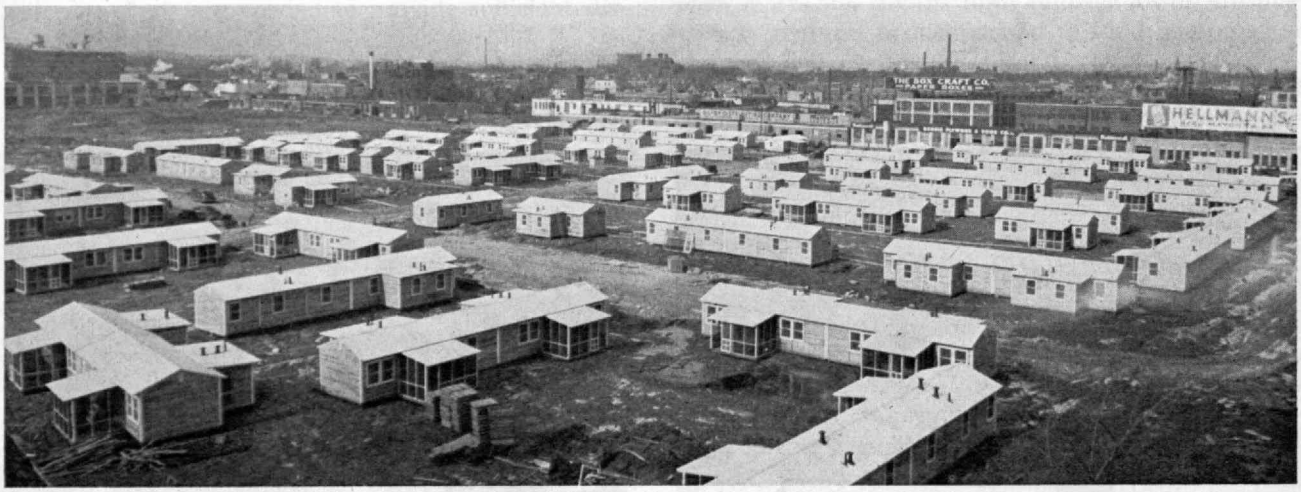
Sloan Laboratories for automotive and aeronautical engineering (left) *were completed in 1940. The six-story building at the right was built during World War II to house the Radiation Laboratory, but Building 24 is now occupied by the Department of Geology and Geophysics and the Department of Meteorology. It also houses the Accounting and Payroll Offices and the headquarters of Buildings and Power.*



Originally constructed during World War II for research activities connected with the Chemical Warfare Service, this long low structure, known as Building 12, houses the Department of Chemical Engineering.

one wall, which serves as exhibition area, ample windows furnish daylight throughout the building. Interior brick walls are painted with colors that brighten the rooms without producing glaring surfaces.

During World War II the Institute's needs for increased space for research on defense projects suddenly expanded. To meet the demands of the technical and administrative staffs of the Radiation Laboratory, a combination laboratory and office building was begun in 1942. The more imposing portion of Building 24 is a six-story building used for laboratories and offices, although a one-story wing was provided for heavy equipment. From the first, the building was planned so that it might be easily con-



Westgate is the name given the community of married students who first came to M.I.T. in large numbers after World War II and for whom these bungalow-type buildings were erected.

verted in the postwar period into peacetime use for the Institute's normal educational requirements. The structure is of light colored brick, harmonizing well with the older limestone buildings. At present, Building 24 is occupied by the Department of Geology, the Department of Meteorology, and miscellaneous offices serving the Institute.

Designed originally to house wartime research activities of the Chemical Warfare Service, a long, one-story building of yellow brick was built during World War II to harmonize with Building 24. This structure, known as Building 12, now furnishes excellent laboratory and office facilities to the Department of Chemical Engineering.

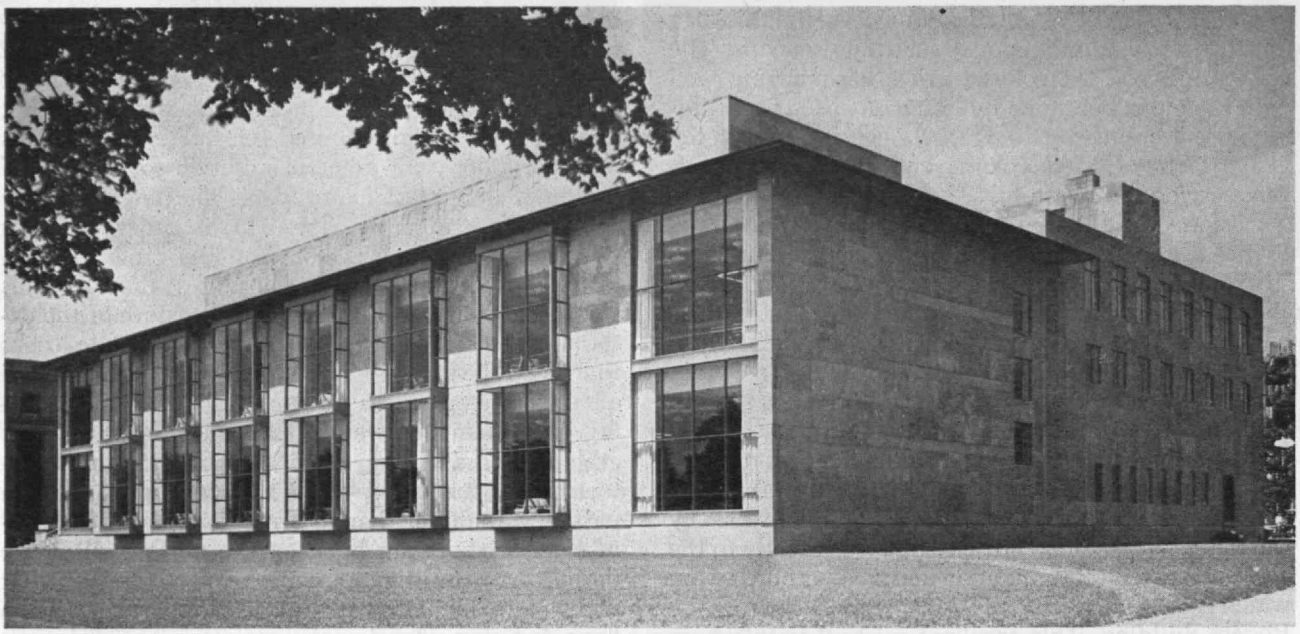
In 1945 the Richard M. Homberg Infirmary was remodeled by Anderson to incorporate features of clinical care and examination which the Institute's growing personnel required. The Infirmary (built in 1928 by Carlson) is a four-story structure joined directly to the academic group; it forms an inconspicuous north wing which is concealed from Massachusetts Avenue by the Rogers Building. This excellent medical unit, whose facilities have benefited so many, was given largely by the family of Richard M. Homberg, '23, who died while a student in his senior year.

The termination of war in 1945 – with subsequent enrollment of large numbers of married veterans – created a student housing shortage that M.I.T. met by constructing a group of one- and two-family cottages in an experimental project. Planned by William W. Wurster, '17, formerly Dean, and other members of the School of Architecture and Planning, with the co-operation of the Department of Building Engineering and Construction, Westgate was designed to house married students and their families. Nearly 100 houses were put up on 10 acres of land on Memorial Drive west of Massachusetts Avenue.

In 1949, Alvar Aalto, a visiting professor from Finland, was asked to draw plans for a new dormitory. Aalto ranks among the foremost exponents of the contemporary style that has not yet been generally accepted in conservative New England. The originality of his contribution to American architecture is evident in the fresh solution to the problem of student housing and pleasing design adopted for Baker House. This new dormitory is a graceful addition to the row of buildings along the Charles River. The new dormitory ripples like a gigantic capital M, in order, as Aalto said, to provide more rooms on the same lot than could be placed in a straight line, and so that all rooms would face upstream or down. The texture of the exterior walls is crisp due to the use of handmade bricks that catch the sun in light and dark nubbins in a vivid effect that emphasizes the curved lines of the building. The main doorway of Baker House, facing the athletic field and away from Memorial Drive, is protected by a low canopy that is plainly intended as a passageway rather than as a meeting place. Glassed-in exterior stairs are hung on the north wall of the dormitory, permitting a freer scheme of corridors that widen into lounges with increasing width on each floor. A dining extension of contrasting stone faces the Charles River and is ingeniously lighted by a series of domes which admit sunlight during the day and provide artificial lighting at night. A clever arrangement of space, that places nearly all rooms on the south or river side where they have direct sunlight, is used for the interior of the dormitory which is planned for 353 students. The single, double, or triple rooms are of assorted sizes and shapes, due to the serpentine plan of the building. Inviting lounges are located on the upper floors. All furniture, except chairs, is built-in and was designed by Aalto in collaboration with his wife, Aimar Aalto.

Much credit is due to the firm of Perry, Shaw and Hepburn, associate architects, who completed construction of the dormitory after Professor Aalto returned to Finland. The dormitory was named Everett Moore Baker House in honor of a former dean of students at the Institute.

Named for the late Everett Moore Baker, Dean of Students, the Baker House dormitory provides accommodations for 353 students. Each of its rooms looks across Memorial Drive and the Charles River, toward Boston.



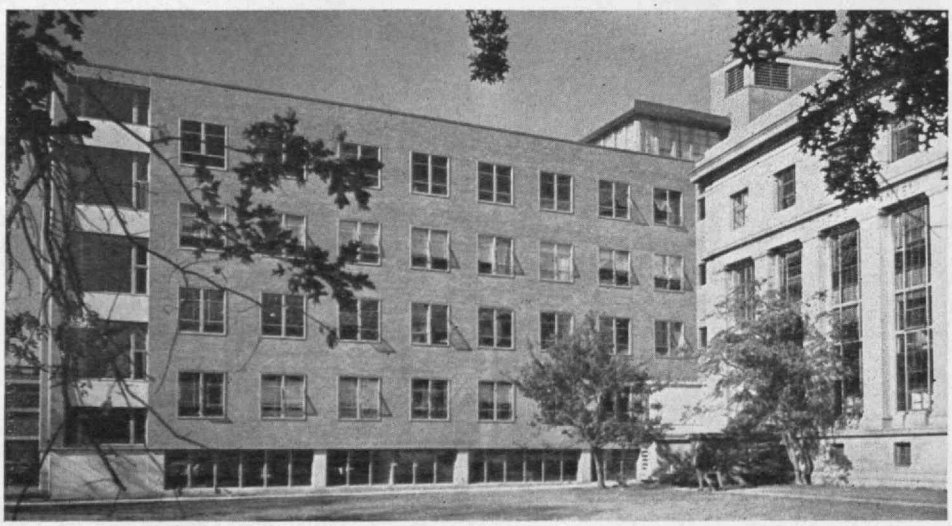
Although not part of its own academic group, M.I.T was directly concerned with a unique apartment house built in 1948 on land leased by the Institute to the New England Mutual Life Insurance Company for an apartment building. This project, Eastgate, or 100 Memorial Drive, was the first venture into the field of housing by the Company. It was planned by William H. Brown, '33, and other members of the School of Architecture and Planning, at M.I.T., including Carl Koch, Robert Woods Kennedy, Vernon DeMars, and Ralph Rapson. A narrow building shaped like a capital F was oriented, on a site beyond the eastern end of the campus, to provide every living room in the 261 apartments with sunlight and also with a view of the Charles River. Each living room opens onto a balcony that is separated from the room by a glass wall in an attempt to bring a bit of the outdoors into the daily lives of urban dwellers. The balconies are gaily painted in light colors.

The north side of 100 Memorial Drive is distinguished by a formal effect achieved by the rhythmic spacing of strip windows that band the wall in a pattern of excellent proportions. The approach to the main doorway is also on this side of the apartment house. It is protected by a long low canopy decorative in its bright color. The strip windows are placed along the corridors which occur on every third floor of the 12 stories in order to fit into a clever scheme of elevator service. To secure better ventilation and greater privacy for apartments on all floors, elevators stop only on floors which have corridors, and private staircases serve intervening floors. The service entrances and a semi-underground garage for 75 cars are also entered on this side of the building.

Although 100 Memorial Drive borders on a highway on one side and on an industrial area on the other, it is a satisfactory structure in appearance and, from the tenants' point of view, a satisfying apartment house in its interior arrangement.

From 1916 to 1950, the area under the large dome of the academic buildings served as general library, while smaller libraries on specialized subjects were scattered throughout the Institute. By the end of World War II, quarters became crowded in nearly all libraries and no additional space was available for developments supplementing literary resources. A grant from the Charles Hayden Foundation plus Institute funds made possible the construction of a new library

The Charles Hayden Memorial Library (above), *opened in 1950, is the main unit in the Institute's large library system. A music room, the Dard Hunter Paper Museum, an exhibition gallery, motion picture theater, and microreproduction laboratory also may be found here.*



Built in 1951, the Metals Processing Laboratory (right) *is occupied and used by the Department of Mechanical Engineering and the Department of Metallurgy. It houses complete facilities and equipment for metal cutting, grinding, welding, and processing of all kinds.*

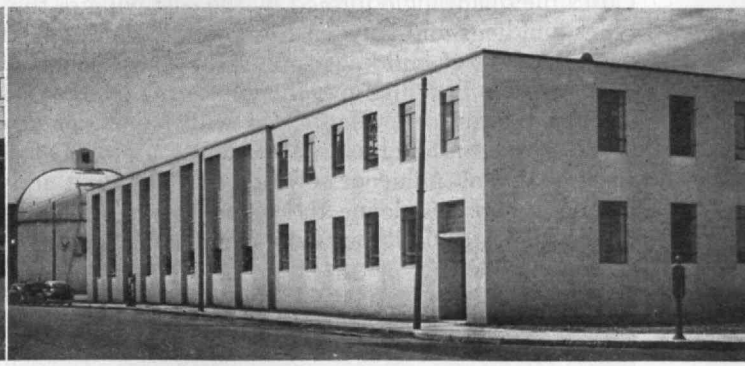
building in 1950. The firm of Voorhees, Walker, Foley and Smith (Ralph T. Walker, '11, Benjamin L. Smith, '30) was chosen to design the Charles Hayden Memorial Library. Named for Charles Hayden (who was graduated in 1890), a generous benefactor, the library was opened for use in 1950.

The Charles Hayden Memorial Library is joined to the east section of the 1916 academic group by a glassed-in corridor and is faced with light-colored limestone blocks. Designed in the form of a rectangle around a paved courtyard, three wings and part of the fourth are devoted to library use. An Exhibition Gallery, on the first floor, has direct access to Memorial Drive and is an important element in a library planned to keep step with present methods of instruction by so-called visual aids. The long rooms on the first and second floors facing the River are reading rooms which benefit from natural lighting during the day, since their south walls consist entirely of glass windows between essential structural strips. A soundproof music room, located on the first floor, is distinguished by the excellence of equipment for playing recorded music, and daily programs are scheduled in advance. In the basement, there is also a special projection room for showing film and lantern slides, and equipment for investigating methods of microreproduction and for duplicating library materials and records. The Dard Hunter Paper Museum, which probably has the most complete collection of hand-made paper and papermaking equipment in the United States, has quarters below the Exhibition Gallery. A well-stocked map room with a six-foot globe is located at the west end of the first floor. Processing departments and administrative offices are on the second floor.

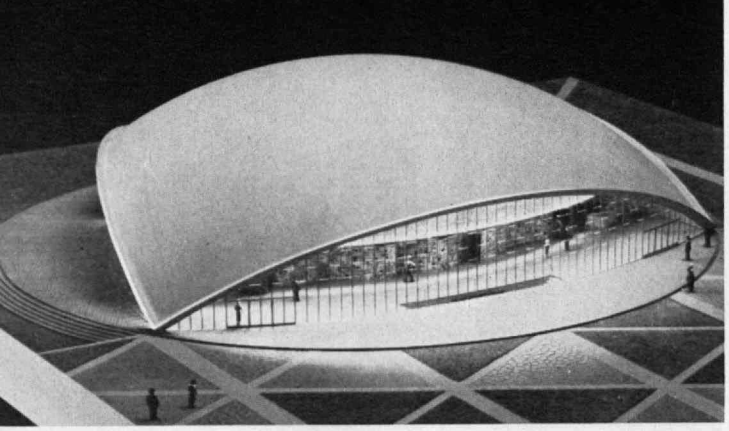
The John Thompson Dorrance Laboratory of Biology and Food Technology is the latest of the Institute's educational buildings to be completed. It was fully described in the December, 1953, issue of The Review.

As the central agency for administration and processing of all M.I.T. libraries, in no sense is Hayden Library a static organization. It is prepared to serve the complex demands of a large undergraduate college, as well as the specific requirements of advanced scholars in engineering and related fields. With modern equipment geared to progressive methods of teaching, it is far more than a mere repository of books; it is a vital force in the education of students.

The Metals Processing Laboratory was built in 1951 to bring together, under the direction of the Department of Mechanical Engineering and the Department of Metallurgy, the study of metallurgy and its application to basic processes of engineering. A gift of $1,000,000 from the Alfred P. Sloan Foundation made possible construction of the laboratory which was planned by Robert C. Dean, '26 – a member of the firm of Perry, Shaw and Hepburn, Kehoe and Dean. Parallel to Vassar Street, the building is connected with the Daniel Guggenheim Aeronautical Laboratory. With gray brick walls broken with regular rows of windows, its simple style is well adapted to the practical purpose of housing classrooms, a foundry, and other metallurgical equipment identical with that



The Supersonic Wind Tunnel (left), *completed in 1948, the Hydrodynamics Laboratory and Towing Tank* (right), *completed in 1949, and the Alfred P. Sloan Building* (below), *acquired in 1950 for the School of Industrial Management and a Faculty Club, are important postwar additions to M.I.T.*



Model of the Kresge Auditorium which will seat 1,200 persons. The concrete shell has been poured and the unit is expected to be ready for use late this year.

found in manufacturing plants. A penthouse on the fifth floor, intended for student-faculty use, engenders informal discussions between the two groups.

One of the latest and one of the most striking buildings designed by Anderson and Beckwith is the John Thompson Dorrance Building for the Departments of Biology and of Food Technology. Occupied in 1952 the laboratory was named in honor of John Thompson Dorrance, '95, the founder and first president of Campbell Soup Company whose gift of $1,000,000 made construction possible. Although joined to the 1916 academic group by glassed-in corridors, the new building runs east-west and partly encloses the quadrangle formed by the east wing of the older buildings and Hayden Library. Where the prevailing height of buildings is four, the seven floors of the Dorrance Building give this unit a relatively skyscraper appearance. The sheer walls and slender width of the building express a concise use of materials, free of all influences of the past. The light and gleaming surfaces define the technological function of the laboratory without flamboyant announcement of its purpose. The east and west walls are of buff brick; the long south wall is divided into strips of windows in fine proportions. The windows on this south wall extend the full height of the offices and form a well-composed pattern.

The interior is an ideal setting for a modern laboratory with light colored walls and sunny rooms. In fact, bright surfaces and abundant daylight give this building a sense of light and air that, combined with excellent equipment, furnish an environment conforming to the best modern standards. Above the seventh floor an additional floor or penthouse, approximately half as wide as the lower floors, has special rooms for animals and also a small greenhouse.

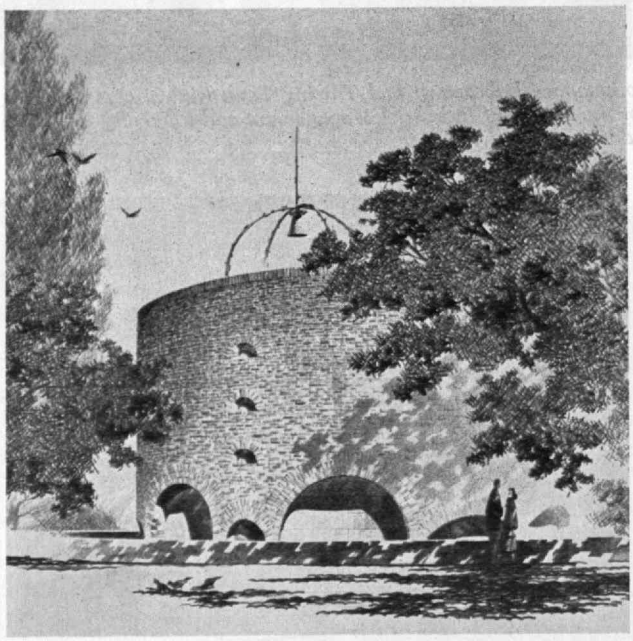
This brief description by no means concludes the list of buildings; there are many others. Some buildings – a few as far away as Nova Scotia – have been built, bought, or rented for the use of M.I.T., and others in the vicinity have been converted to Institute use. Several laboratories, such as the Supersonic Wind Tunnel (1948), the odd-shaped laboratory for the Van de Graaff high-voltage generator (1948), the Hydrodynamics Laboratory and Towing Tank (1949), have been built to contain specialized equipment that is the finest of its kind. Of course there are also the utility buildings essential to the functioning of the total complex. Land has been added to the original 50 acres on the Cambridge Embankment and frequent acquisitions by the Institute are steadily expanding its boundaries.

Of those added by purchase, mention should be made of the building at 50 Memorial Drive, formerly owned by Lever Brothers Company, which was bought with funds donated by the Alfred P. Sloan Foundation to house the School of Industrial Management. Designed over 10 years ago by the architect Donald Des Granges, '14, it conforms closely to the style of other M.I.T. academic buildings. The first floor has six interesting murals by Francis Scott Bradford depicting familiar scenes of Boston and vicinity. The remaining stories have been remodeled by William H. Brown, '33, Associate Professor of Architecture, as classrooms and offices, the third floor as a library, and the sixth or top floor as a faculty club.

But, the last chapter in architectural history has not yet been written. Designs have been prepared by Eero Saarinen and Associates for construction, with funds from the Kresge Foundation, of an auditorium and a small chapel west of Massachusetts Avenue. The plan of the auditorium now under construction is a brilliant departure from the traditional wedge-shaped, high-roofed hall; it is a low, triangular segment of a sphere caught into the ground by abutments at three points. It is a brilliant departure, also, from the classic use of a dome to cap a monumental building, for the roof which is actually one eighth of a sphere curves down on the three sides to form part of the walls. The interior of the auditorium will be divided into two levels, a hall seating 1,200 persons and a small theater on the lower level.

The little round brick chapel proposed by Saarinen, that will seem strange at first glance, is but an ancient form used by the Greeks in their temples, the Normans in their round churches in England, the

(*Concluded on page 376*)



Proposed for early construction is this design, by Saarinen, of a chapel to be built on the West Campus adjoining the Kresge Auditorium.

Is There A Limit to Human Life?

Intrigued through the Ages, Scientists and Philosophers Have Advanced Theories to Explain Longevity but Heredity Still Appears as Dominant Factor

By JAMES A. TOBEY

THE longest human life in history is supposed to have been that of an Englishman named Thomas Parr. This venerable gentleman is reputed to have been born in Shropshire in 1483 and to have died in London in 1635, at the fairly ripe old age of 152. Because of the notoriety connected with this alleged great age, he was buried in the south transept of Westminster Abbey, where the inscription on his tomb states that he lived in "ye reignes" of 10 princes, from Edward IV to Charles I.

According to tradition, Thomas Parr spent the first 80 years of his long life working as a bachelor farmer. Then he married and sired two children, both of whom died in infancy. At the tender age of 105 he was charged with having caused the birth of an illegitimate child and was sentenced to do penance by standing in the church door in a white sheet. His wife died when he was a mere 110, but he remarried at 112, and at 130 Mr. Parr was busily engaged in threshing corn.

In 1635 the fame of this antique specimen of humanity reached Thomas Howard, Earl of Arundel, who whisked him off to London, presented him to King Charles, and otherwise made much of him. The fast life of the metropolis, or as the contemporary accounts put it, "the change of air and diet," proved too much for the old man, and he succumbed in November of 1635. An autopsy was performed on the body by Dr. William Harvey, celebrated as the discoverer of the circulation of the blood, who reported that the physical condition of this famous English centenarian was excellent.

The advanced age of "Olde" Parr would, if true, be of tremendous interest and significance to all concerned with human longevity, but unfortunately it is not true. No one disputed this unusual age, however, until 1873 when a skeptical librarian of the House of Lords, William J. Thoms, decided to investigate this case and numerous other alleged instances of extreme old age. A good basis for his study was a report published in 1800 by James Easton listing no less than 1,712 "true" centenarians who had flourished from 66 A.D. to 1799. Included, of course, was Olde Parr and another man named Henry Jenkins, who was declared to have been even older, a modest 169. Also in the record was a Countess of Desmond at 140.

After an exhaustive examination of 22 cases of such human sempiternity, the doubting Mr. Thoms reached the apt conclusion that the evidence justified none of them. He demonstrated, for example, that the lives of two different countesses of Desmond had been added together to produce the age of 140, and that neither of them had lived much beyond 70 years. With respect to Thomas Parr it was shown rather conclusively that at least 50 years had been erroneously, or even fraudulently, added to his actual age and that he could not have been over 100 years old at the time of his death.

Despite this masterful job of debunking, one will still see occasional references to Olde Parr as the oldest man in the world. The lie lingers on, but the correction is forgotten. There is even a short article on Thomas Parr in the 14th edition of the *Encyclopaedia Britannica*, but no mention of the work of Mr. Thoms of the House of Lords.

A few years after this nice bit of exposure, another author who was familiar with it, John B. Bailey, issued a book entitled *Modern Methuselahs** in which he described numerous real and near centenarians, but he was able to find only about a dozen individuals who were undeniably in this hoary category. In another competent survey of centenarians, made in 1899 by a British actuary, T. E. Young, only 22 authentic instances of persons aged 100 years or more were cited, although a second edition of this work, issued in 1905, added another eight to the original list. The longest verifiable age mentioned by Mr. Young was one of 111 years, and in the 50 years since this report, no one has been able to offer acceptable proof of any human life longer than this. There have been plenty of claims, but no proof. Thus, about the time Young's second edition came out, a Russian newspaper blandly announced the death of a woman named Therese Abalva at the somewhat advanced age of 180, but offered no evidence to substantiate this extravagant and incredible statement.

The only instance of unique senescence which offers even a scintilla of reliability is that of a Dane named Christen Jacobsen Dragenberg, who was reported as living to the age of 146. A reputable statistician who wrote up this case in an actuarial journal was convinced that it was true, but most biologists are skeptical. This Dragenberg was said to have been born in 1626, to have gone to sea at the age of 13, to have served three kings in wars against Sweden, to have been captured by Algerian pirates at the age of 70, and to have been held in captivity for 19 years. Like

* London: Chapman and Hall, Ltd., 1888.

Olde Parr, he is asserted to have had one of those colorful marital careers, with betrothal at the age of 111. He outlived his young bride of 60 and died in the year 1772.

Even if this particular case is genuine, which is doubtful, many other instances of reputed longevity beyond the age of 110 have been definitely shown to be mistakes or frauds. The flamboyant Phineas T. Barnum began his colorful career as a showman in 1835 by exhibiting an ancient-appearing negress, one Joyce Heth, who was asserted to be 160 years old, and more than that, to have been the nurse of George Washington. When she died in 1836, Joyce was proven to be no more than 70 years of age, and to have been born when our first president was 34 years old. Nothing daunted, Mr. Barnum turned his attention to dwarfs, opera singers, and circuses, and later wrote a book on *Humbugs I Have Known*† – a subject upon which he could write with authority.

A few years ago this country was favored with a visit from a venerable Turk, one Zaro Aga, who claimed that he was 156 years of age and the oldest man in the world. After getting considerable attention from the gullible public, he was finally induced to submit to a medical examination by several distinguished physicians, who reported that he was undoubtedly somewhere between 90 and 100 years of age. Then there was the Kentuckian named John Shell who achieved some notoriety several years ago by stating that he was 131. The late Dr. Raymond Pearl, an eminent biometrician, looked into the case and decided that Mr. Shell might be in the vicinity of 100, but certainly no more than that.

From the Balkans, where birth certificates always have been unknown and memories are unreliable, have come many tall tales of extreme old ages, usually attributed to the lifelong consumption of black bread and fermented milk. One example is Marie Priou who died in 1838 at the reputed age of 158. Her case and many others of like duration, all hearsay, were faithfully reported by Professor Élie Metchinikoff, a famous bacteriologist, who got out a book on the Prolongation of Life‡ early in the present century. In this weighty tome the professor declared that modern man ought to live to be at least 120.

Although a few enthusiastic scientists have predicted that man can, and some day will, live to be 150, there is no reliable evidence that anyone ever has done so, and it seems doubtful if anyone ever will do so. But who can tell? The consensus of scientific opinion is that there is a definite limit to human life, a limit now and perhaps forever in the vicinity of 100 years. On very rare occasions individuals exceed this limit by a few years, but no one has been proven to have lived longer than 111 years. Human life, is, in fact, like a clock; it is set for a definite time. Sometimes, unfortunately, the clock stops before our time is reached.

We do not know accurately how many real centenarians are now living in the United States, but a good guess might be somewhat over 1,000. To be sure, you can find in the federal census reports of about 4,000 persons who are alleged to be 100 or more, but all authorities regard these figures as utterly unreliable, since they are compiled from individual statements. About two thirds of these persons claiming advanced ages are Negroes, who comprise only about 10 per cent of the population. A century ago birth records were not kept with any degree of accuracy in most parts of the country, with the exception of the New England States and New York, and age is one of the subjects on which most memories seem woefully defective.

During a career of more than a third of a century in public health work the author has encountered only one genuine centenarian, and even he was a few months short of the mark. This gentleman was Dr. Stephen Smith, who was born in Onondaga County, New York, in 1823. He was one of the founders of the American Public Health Association in 1872, and at the 50th anniversary banquet of the Association in New York City in 1922 Dr. Smith walked briskly in, stood up for 20 minutes or so and read in a clear voice a speech which he had written. He was then 99 plus, and a few months later he died just under 100 years of age, but more than that if you include the period of gestation. The painter, Titian, was also active up to his 99th year and might have lived longer if he had not been cut down by the plague in 1576.

The fact that the ultimate length of human life seems to be biologically fixed does not mean, of course, that individual lives cannot be extended so that more of them may attain the biological limit. In 1900 the average span of life in the United States, or the expectancy of life at birth, was only a little over 47 years; in 1930 this figure had risen to about 60 years; in 1940, to about 63 years; and in 1949, to 67.6 years for the entire population; and to 71.5 years for white females. The latest data, for 1950, reveal a new high of 68.4 years for all the people. Since women live longer than men, on the average, the expectation of life at birth for white females is 72.4 years, while for white men it is 66.6 years. The nonwhite figures are seven or eight years lower.

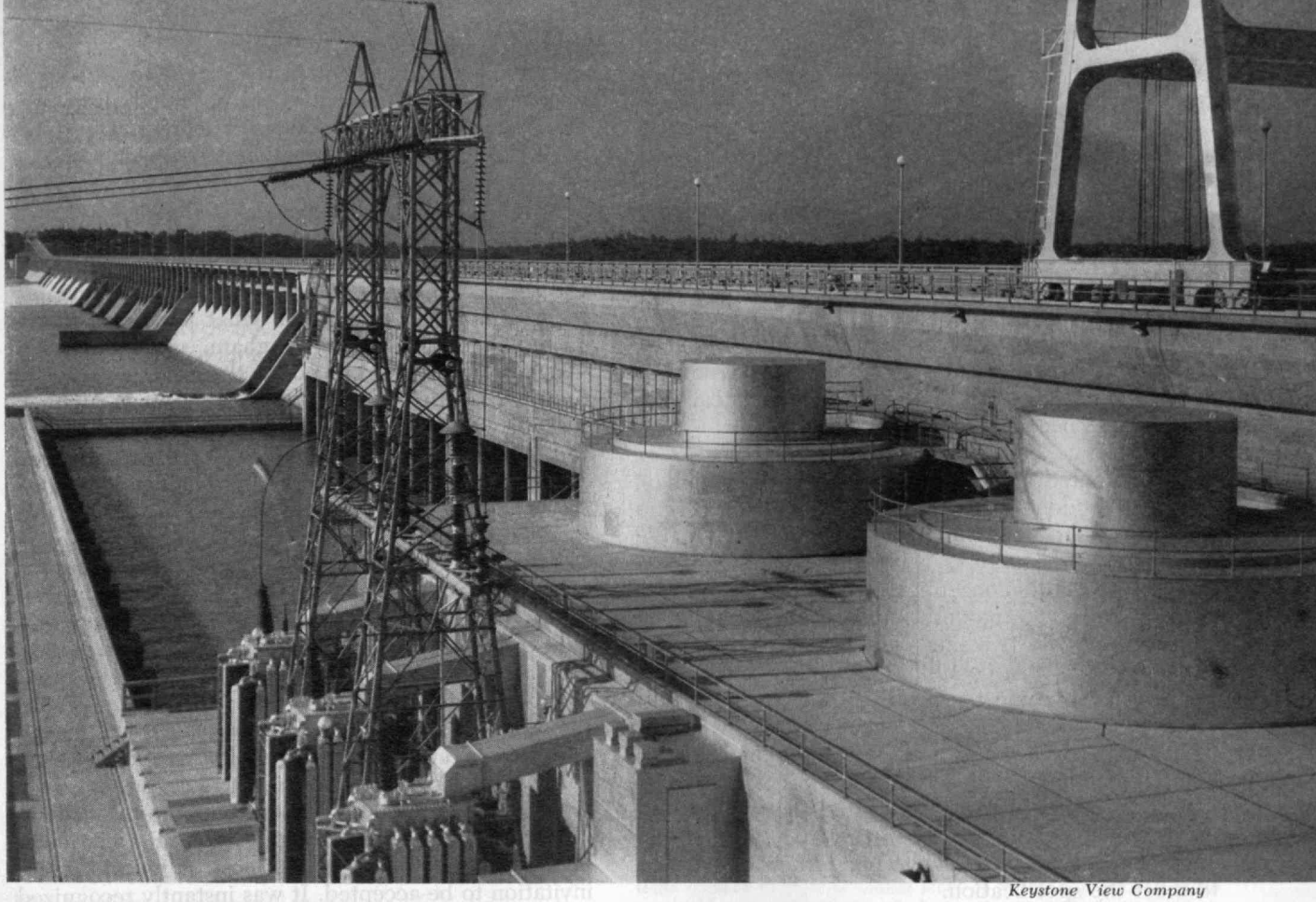
When we speak of the "average" length of life, we are of course using figures computed from the deaths at all ages, in infancy, childhood, and adolescence as well as in middle and old age. The most dangerous period of human life is its first year, but this first year is much less hazardous today in the United States than it was a generation, or 50 years, ago. In 1933, the first year for which we have complete statistics on infant mortality, there were 58.1 deaths of infants under one year of age per 1,000 live births, whereas in 1950 the rate was 29.1, or almost exactly one half that of 1933. There have been comparable reductions in maternal mortality, in deaths due to childhood diseases, and in tuberculosis – the mortality of which has declined about 90 per cent since 1900. No longer does consumption deserve the epithet of "captain of the men of death," as it did at the turn of the century. Its place has been taken today by diseases of the heart, the afflictions which befall an older population.

The people of the United States are growing up. Whether they have matured socially, culturally, in-

(*Continued on page 376*)

† New York: Carleton, 1865.

‡ New York: G. P. Putnam's Sons, 1908. [Translated by P. C. Mitchell.]



Keystone View Company

ELECTRICAL ENGINEERING IN A NEW KIND OF UNIVERSITY

By ARNOLD TUSTIN

ENDURING memorials to the life and work of Edwin Sibley Webster already exist. One such memorial is the great industrial organization that he built; another is the work of this Institute he did so much to support and guide; and another is the progress his interests stimulated in many branches of technology.

Edwin Sibley Webster was one of the earliest students in the Department of Electrical Engineering at M.I.T. The Webster Chair in this Department will specially and fittingly recall the remarkable vision with which he foresaw the significance of technical education, as well as his many contributions to fostering its development.

The immediate purpose to which the benefaction is being directed is the building up of activity in the fields of energy conversion and electrical machinery. The electrical power industry is doubling in size each 10 to 12 years. Advances in its techniques are as noteworthy as those in size. Only 10 years ago the high-speed turbo alternator was limited to outputs per unit of 70,000 kilowatts. Today units of 200,000 kilowatts exist, and units of 300,000 kilowatts are contemplated. The breaking capacity of power circuit breakers has been increased in less than 10 years from 5,000,000 to 25,000,000 kilovolt-amperes, and much higher values must be achieved to meet the needs of the power services of the future.

Despite this major growth and the range of problems that it is making acute, the power branch of electrical engineering has been steadily becoming neglected by the universities and teaching institutions in favor of electronics, communications, control systems, and the like. This is the case not only in the United States but in Britain and elsewhere. But due to the forward-looking habit of M.I.T. and in particular to the vision of Gordon S. Brown, '31, Head of the Department of Electrical Engineering, steps are being taken to rectify this deficiency in good time, and this Webster Chair will make a most timely and substantial contribution to this project.

During my tenure of the chair, it is my hope to see at least the beginnings of a new spate of basic research and active, high-level, postgraduate teaching in this field. Also I hope to see the same sort of impact made on the energy-handling branches of electrical engineering as M.I.T. has lately made in control, in communications, and in many other fields.

Technical Education

On the occasion when we recall in particular Edwin Sibley Webster's work in fostering technical education, it seems appropriate that this inaugural address should have technical education as its topic. Today, applied science has grown out of its baby clothes, and might be likened to a vigorous if somewhat slapdash youth, who has still to grow to maturity, to integration, and to responsibility.

Can we too, as Mr. Webster did earlier, also look ahead and discern the needs of the future from this stage where both applied science and technical education have become so highly developed?

I believe we can, and in the title for this address, I have adapted a phrase in which James R. Killian, Jr., '26, President of M.I.T., aptly crystallized certain aspects of the needs in technical education in the near future: the phrase "a new kind of university." I believe that the conception is taking shape that a "university for the modern man" can and should be built around the teaching of applied science as its core, and that it is possible, and indeed likely, that M.I.T. may become the prototype of this new kind of university. I propose therefore to take this phrase of Dr. Killian as a suggestive specification, to consider what might be the objectives and purposes of this new kind of university built around the applied sciences, and to try to sketch, in the true spirit of the engineer, at least some of the main lines of a design to meet the specification.

Before I attempt to do this I think that I should remind you that what M.I.T. does in its next stage of advance is important, not only in its direct and immediate outcome, but in the extent to which, all over the world, its activities are observed, discussed, and imitated in various ways and degrees. The status of M.I.T. in technical education is unique.

One true social need is certainly that many more men knowing much more about science must be provided.
Harold M. Lambert

The Present Status of M.I.T.

Perhaps I may illustrate this in passing — although this means departing for a few moments from my main theme — by telling you what happened in my home University of Birmingham, when Professor Brown descended on us out of the blue, or more literally out of the grey sky of a wet English summer, and conveyed to me your invitation to occupy this chair.

I need not say how deeply I personally appreciated the honor of being so invited; but, in so relatively modest an establishment as ours, it is no small matter to cast a year's work onto the shoulders of one's good colleagues. Therefore, I revealed your invitation first at our departmental staff meeting. The response was voiced by one of my younger colleagues in the words "Professor, we'll pass the hat round for your fare." There was, it is true, a possible ambiguity in this remark, but I took it in the spirit I knew it was meant, and broached the matter at Faculty Meeting.

It would have been pleasing to you to have seen how immediate and unanimous was the response of the Vice-Chancellor, the Dean, and the Faculty members, to the effect that means must be found for this invitation to be accepted. It was instantly recognized that such an invitation from M.I.T. was an honor to our university and that M.I.T., above all other places, can offer experience, stimulus, and a foretaste of the future that are unique.

British Controversy on Engineering Education

During the last few years in particular, M.I.T. has been a focus of attention in Great Britain because a wordy battle has been raging over whether or not we are to have a British Institute of Technology. It is one more tribute to the status of the Massachusetts Institute that "A British Institute of Technology" is, as often as not, colloquially rendered with disregard for geography as "A British M.I.T."

You probably all know that a final decision has been staved off by the compromise, as a first step, of doubling the size of the applied science departments at Imperial College, and increasing the number of postgraduate students in certain other universities.

The controversy is not closed, and I am sure that when I return to England I shall be assailed by demands for the inside story about M.I.T. The question that I shall certainly be asked is "What sort of men does M.I.T. turn out?"

It is, of course, in relation to the breadth and completeness of the development of the students that battle has been joined. There is certainly a need for more and better electrical engineers, metallurgists, and so on, but no one — here or anywhere else — suggests that an intensive training in technology alone is likely to turn out men who are sensitive, mature, integrated, and socially responsible, and this we also want.

The question much debated in Britain is whether full development of human potentialities could adequately be fostered in institutes of the M.I.T. type, or whether it emerges only when the students of arts mingle with students of engineering on the same campus, which is supposed to generate what is referred to as a "university atmosphere." Personally I do not think the type of institution is the decisive factor. My own observation is that, in general, the British university is not at present giving to students in applied science an education adequate for a modern man. Here at M.I.T. the engineering student has, interlarded between his mathematics and his laboratory work, an impressive sequence of lectures on topics from Plato to J. M. Keynes. Does such factual instruction have much formative effect? It may, but it very well may not. In both environments some catalyst is needed to evoke the right type of spiritual ferment.

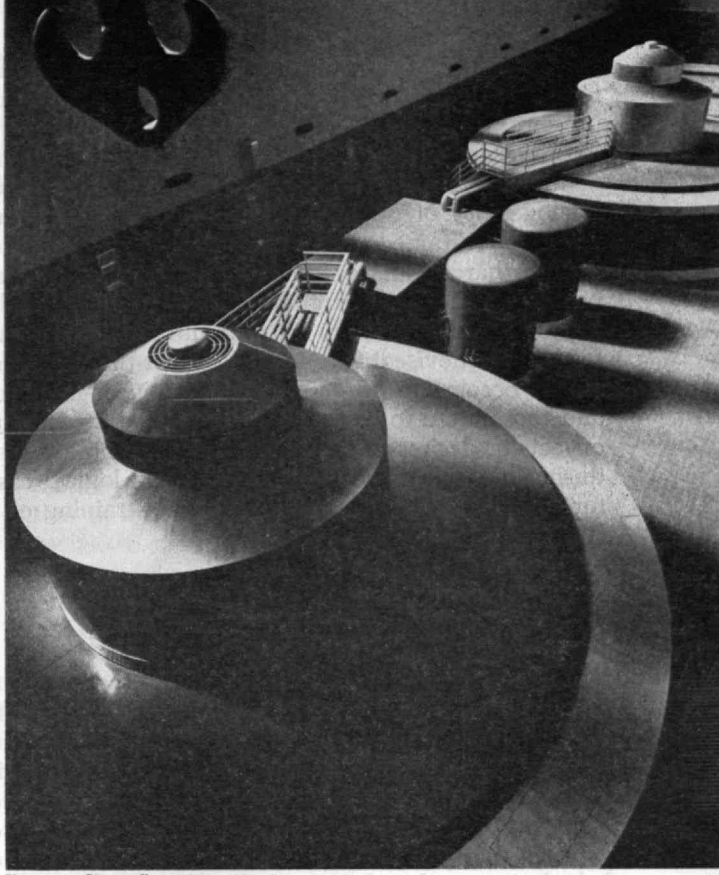
Those who plan courses of instruction for a technical institute have at least one advantage. The requirements for explicit provision of means for broader education present themselves obviously and urgently, and cannot be left to uncertain contagion from the students from departments of Greek or theology.

In our design for a university for a modern man we must provide the means to secure the ends we desire. But what are the needs of society with respect to the education of this increasing proportion of our best-born youth who will find their life's work in the development laboratory, the design office, and the plant? The need is that they should contribute to the maximum to a better society.

One true social need is certainly that many more men knowing much more science must be provided. Man is changing his way of life. Vast new productive possibilities are being opened up by the organization of co-operative work, by the creation of new complex tools, and by ever-deepening understanding of the physical world. For this, armies of men skilled in various ways in applied science, will be required.

Here immediately arises a basic social problem, for only a small proportion of men are born with mental aptitudes such that they can become skilled in these complex arts, at the advanced level now required, as a result of a period of training that is economically and psychologically practicable. To provide education that is adequate for social needs – both with respect to the high technical level of training as well as with regard to breadth of knowledge and interests, and personal and emotional development – is to meet a very onerous specification. Our dilemma is a very real one. We may too lightly overlook the possibility that there may be no possible solution, at least, not without making changes or compromises of a very radical kind.

All but the most highly gifted students already stagger under the burden of intensive acquisition, in a very limited time, of loads of knowledge and skills. Like burdened camels they thread the needle's eye of successive examination. The kind of life that such academic discipline imposes on the less able students at some stage ceases to be compatible with either breadth or spontaneity. We may sometimes get



Keystone View Company

To provide education that is adequate for social needs – both with respect to high technical level of training as well as with regard to breadth of knowledge and interests, and personal and emotional development – is to meet a very onerous specification.

a quart out of a pint pot, but seldom two quarts. I do not doubt that methods of selection and methods of instruction will both improve, but the demands also grow steeply. The steam engine gives way to the airplane and the slide rule to the digital computer.

It looks as though the exploitation of science may encounter a limiting rate set by the distribution of intelligence quotients in our populations. But even if this is the case we must not so overforce the production of scientists-at-all-costs that we turn out men who are morons in every other respect. I suggest that we can relieve this situation, and still give proper weight in our new university to broad development, as well as to technical *expertise*, in at least three ways.

Firstly, let us accept the fact that technical training is spread – and must be spread – over vastly more of a man's life than his years at the university; we must provide more adequately for this continued education. We must recognize, as major obligations of our teaching institutions, the writing of books, support of the professional institutions, and the organization of advanced specialized courses, near places where men work. We must encourage and make possible the habit of return to the institute for supplementary specialized work at intervals throughout professional life.

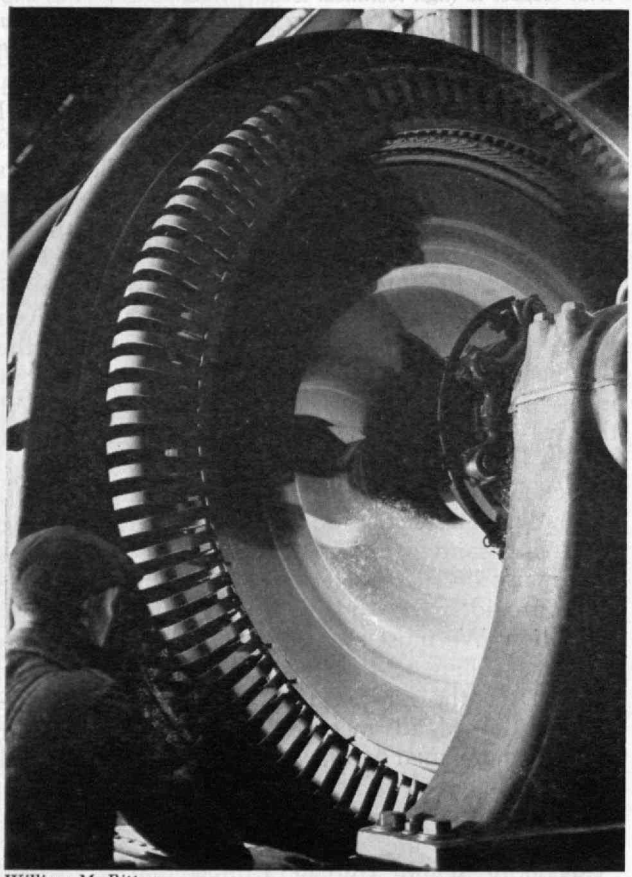
Secondly, where student caliber will not allow more, let us be content to build, on a broad base of general scientific training, only a narrow pinnacle of specialization, to be added to and broadened later.

Thirdly, let us give more attention to the proper classification of entrants to training, both in respect

to ability and in respect to the general type of work for which they are being trained. The teacher's present nightmare is to provide a curriculum that is optimum for all students in a class that ranges from a brilliant few to a mediocre tail. Reasonable homogeneity of aptitude is required, and this can never be attained when all colleges are pulling equally hard to get as many of the best students as possible. Some co-operation in this respect would pay dividends. Similarly an optimum curriculum can scarcely be devised if we lump together the men who are to become the broad type of engineer-manager and those fitted to be the back-room analyst. No one expects or desires a student to plan his whole career during his university life, but there is a logical case for curricula being planned to provide training of a stated type.

The Scope and Content Required in a Program for Broader Education

With these few suggestions I shall, for the moment, leave the technical curriculum, and turn to the matter of controversy. What are the needs of society in respect of requiring, in its applied scientists, sensitivity, maturity, integration, responsibility, a sense of proportion, a sense of humor, and in fact all those aspects that make the man as distinct from the calculating machine? How shall these needs be met in our university for the modern man?



William M. Rittase

It would be a very desirable thing if a far larger proportion of our best brains could be diverted to research of a fundamental kind in the social, economic, and psychological sciences, instead of drifting, with the local economic winds, into the elaboration of mechanisms.

If this were a matter of imparting some items of knowledge, the problem would be an easy one, but this is not the main problem. Some specific knowledge certainly is indispensable to our modern man. We would expect him to have a mastery of at least his own language, to have some broad acquaintance with the main lines of human history, and with the status and limitations of current beliefs about man's place in the universe and his evolutionary origins. We would expect him to have some knowledge of the working of our economic systems, and of their relationship to recent economic history and current controversy. I do not see that there is much else that is indispensable. To ensure basic factual knowledge of this sort is not difficult. Obviously, however, such an approach could well miss the main issue. We are concerned with what the man is, rather than what he knows. We are concerned essentially not so much with the operations of the intellect as with essential vital processes and with the world of feeling, purpose, desire and aspiration, and the patterning of these in personality.

Of course, the need to provide some instruction in English, and in the social sciences does indeed open an immensely valuable channel for stimulus of this vital growth. Professional training can also be a channel equally significant in these broader aspects. What seems to be required is a vital fusion of both.

As it now exists, M.I.T. is a unique experimental ground for discovering how that catalyst, or leaven, may be thrown in to transmute a school of technology into the university of the modern man. The policy of M.I.T., in recent years, of extending and broadening the general aspects of education is, in my view, a policy of wisdom and foresight. These aspects are contributed mainly through the School of Humanities and Social Studies. I have already sensed the excellence of the work they are doing, and I would like to offer for your consideration some thoughts on the way in which the work of departments of general education, in our new kind of university, might be more completely integrated with the work of the technological departments, in order that the combination be related more meaningfully to the world of purposes and values.

One door to this seems to me to be wide open. It is the concept itself of the aim and purpose of applied science as human welfare. Let us wholly accept as the master purpose, aim, and principle of design of our new institute, not the mere feeding of research results to a blind economic machine, but the global problem of applying all our knowledge and understanding to the betterment of the human future. This must be understood as including and combining the study of means and ends; it must find the complement of the physical sciences in economics, in the social sciences, in a moral philosophy, and above all in a sharpened sensitivity and awareness of our values.

In implementing, guiding, and inspiring the global research activity of such an institute into a relationship of science to human welfare, the departments of social science and economics would clearly have to play a major role. For the present and for the indefinite future the real problems have to do with ideo-

(*Continued on page 362*)

THE INSTITUTE GAZETTE

PREPARED IN COLLABORATION WITH THE TECHNOLOGY NEWS SERVICE

Alumni Day, 1954

This year, Alumni Day, which falls on Monday, June 14, will feature a discussion on "The Next 10 Years" – a forecast of the new trends, achievements, and problems that will confront the engineer and the executive during the next decade. Karl T. Compton, chairman of the M.I.T. Corporation, will be moderator of a panel of speakers consisting of: Vannevar Bush, '16, President of the Carnegie Institution of Washington; E. P. Brooks, '17, Dean of the M.I.T. School of Industrial Management; and Edward L. Cochrane, '20, Vice-president for Industrial and Governmental Relations at the Institute.

In addition to this symposium, Technology Alumni returning to M.I.T. will have opportunity to visit their departments and inspect Technology buildings, of which the Dorrance Laboratory and the new Kresge Auditorium are the latest additions to Technology structures.

In accordance with the custom of the past few years, James R. Killian, Jr., '26, President, will present his "state of the Institute" address at the luncheon in the Great Court at noon. Dr. and Mrs. Killian will again hold Open House in the afternoon.

In the evening, the annual Stein-on-the-Table Banquet will be held at the Hotel Statler, and William B. Given, Jr., '08, chairman of the Board, American Brake Shoe Company, will be the principal speaker. Mrs. Karl T. Compton will be the speaker at the Ladies' Banquet.

At the Institute's 88th graduation exercises on June 11, the commencement speaker will be Clarence B. Randall, chairman of the Board of Inland Steel Company of Chicago and chairman of the U.S. Commission on Foreign Economic Policy.

Graduate Students As Alumni

At the present time, about one fourth of all M.I.T. students are enrolled in the Institute's Graduate School, and, of this group, approximately three quarters have received their undergraduate training at some other educational institution. Those holding advanced degrees often have loyalties to more than one university, and the rapid rise in graduate study in the United States within the past decade or two has accentuated the need to give more thoughtful consideration to the alumni loyalties and interests of those who study and further their education at several different colleges and universities.

This problem is not unique with M.I.T., but perhaps the problem is most clearly perceived here because the Institute awards nearly one tenth of all the advanced degrees in science and engineering which are granted in the United States each year. Accordingly, in May, 1952, the Executive Committee of the Alumni Association appointed Hugh S. Ferguson, '23, chairman of a committee whose other members were Leicester F. Hamilton, '14, Professor of Analytical Chemistry, and Harl P. Aldrich, Jr., '47, Assistant Professor of Soil Mechanics. This committee was charged with responsibility for studying the status of the Institute's graduate students who had received their undergraduate training elsewhere,* and to recommend ways of providing more effective participation in matters relating to M.I.T. and the Alumni Association. Members of this committee, together with six guests, summarized the results of their studies at a meeting on February 16, 1954. The committee also presented its recommendations to the Alumni Council at its meeting on March 1, at which time its report was accepted with appreciation.

The committee noted with pleasure that the past year had seen the establishment of a Graduate Student Council (for graduate students currently registered at M.I.T.) with its own campus publication entitled *The Graduate Student News*. Thus, a mechanism has already been created which should be helpful in fostering class spirit and loyalty to M.I.T. while graduate students are still pursuing their studies at the Institute. A step in fostering M.I.T. loyalty among graduate students who took their undergraduate work elsewhere was already taken last May, when the letter from the president of the graduating senior class had its counterpart in one written for graduate degree candidates by the president of the Graduate Student Council, Nolan T. Jones, a candidate for the S.M. degree in 1954.

Believing that graduate students prefer to have their alumni affiliation with the Institute identified as of the year in which they receive their first (advanced) degree from M.I.T., the committee recommends that:

1. Each spring, beginning in 1954, the Graduate Student Council be asked to choose Class Officers from among the group who will receive their first (graduate) degrees from M.I.T. the following June, said "Graduate Class Officers" to be the counterparts of "Senior Class Officers" elected at the same time by the senior class. As used here the term "Graduate Class Officers" refers to those graduate students of M.I.T. who do not already have class affiliation or alumni status as a result of previous study, at the undergraduate level, at the Institute.

2. Graduate Class Officers fulfill for their group essentially the same functions now prescribed for "Senior Class Officers" as set forth in the Association's *Class Officers Manual*, and that the terms of office of the Graduate Class Officers also be for five years.

3. Particular care be exercised, especially in 1954, to urge election of a secretary and one or more assistant

* No succinct and satisfactory term has yet been found to designate those students achieving alumni status through study only in the Institute's Graduate School. The terms "Graduate Student" and "Graduate Class Officer" are used here in the sense of designating only those M.I.T. graduate students whose undergraduate work was done at an educational institution other than M.I.T.

secretaries from among those graduate students who may be especially interested and competent to prepare monthly notes for inclusion in The Technology Review as a section of the 1954 Class Notes. (It is contemplated that the 1954 Class Notes will carry at its end the names and addresses of the secretaries of the Senior Class as well as of the Graduate Class.)

4. The Graduate Student Council be asked to suggest, for appointment by the Alumni Fund Board, the name of a man to serve as counterpart of the 1954 Senior Class Agent, as Class Agent for those receiving their first (advanced) degree in 1954.

5. Beginning next autumn, the Executive Committee of the Alumni Association of M.I.T. invite a representative of the 1954 Graduate Class Officers to be a guest at Alumni Council meetings. (It is contemplated that a constitutional change may be made to provide for two regular representatives of the Class of 1954 and subsequent classes, one being from the "Senior" group and the other from the "Graduate" group.)

6. The Executive Committee of the Association continue to invite a representative of the Graduate Student Council as a guest at Alumni Council meetings.

The committee was also of the opinion that an attempt should be made to establish similar class organizations for those who have previously received only graduate degrees from M.I.T. Students who become M.I.T. Alumni through attendance only in the Graduate School should receive all general alumni mailing and special mailings, such as:

1. A bulletin, prepared annually by members of the Faculty or Administration, reporting recent developments in the Graduate School. Such a bulletin would replace the Class President's Letter which, henceforth, will not be sent to those students who have been enrolled only in the Graduate School of M.I.T.

2. Letters soliciting contributions to the Alumni Fund prepared by a Committee of Graduate Class Agents appointed by the Alumni Fund Board.

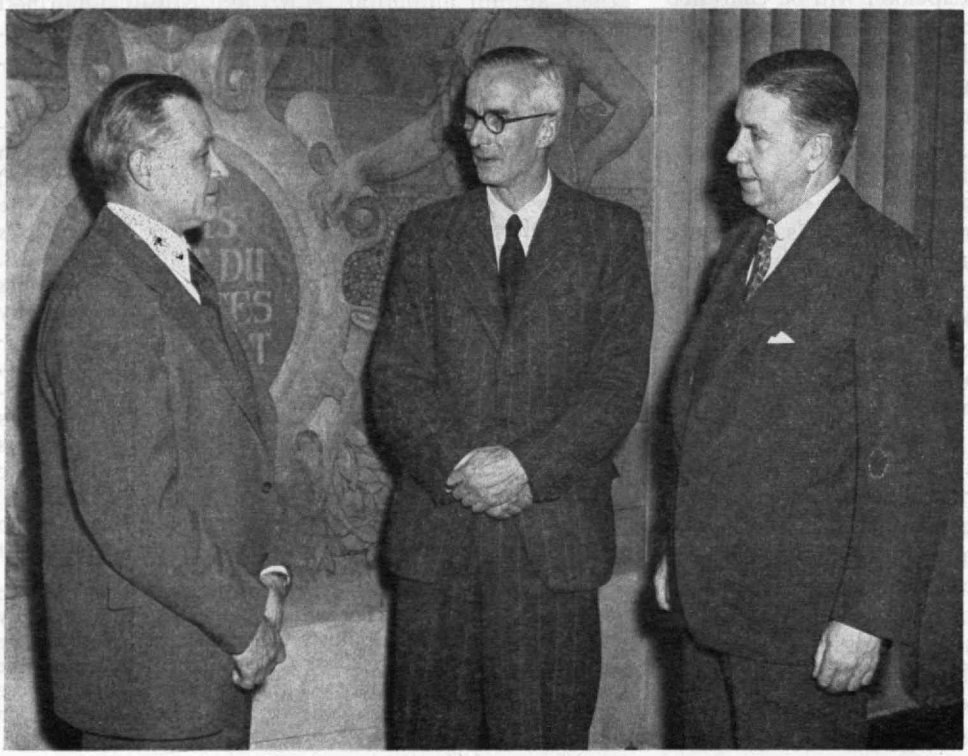
Richard W. Long: 1888-1953

TYPICAL of the benefits which may be shared by industry and by education was the talent of Richard W. Long. Upon his death on November 13, 1953, tribute was paid by the Institute and by the New England Mutual Life Insurance Company, where Mr. Long was employed as engrosser in the Policy Department.

Since 1912 Mr. Long has inscribed 32,933 degrees for M.I.T. The names of Alumni engraved in his beautiful handwriting exemplify a handcraft of a high degree of skill, not incongruous with the proficiency attained in the mechanical arts and technology of those whose names have been written.

Mr. Long was born in Fort Jones, Calif., of American Indian parents. His mother was a member of the Shasta Tribe, and his father a member of the Hoopa Tribe. He attended the Salem, Ore., Indian Training School, where, in addition to the usual subjects, he studied the trade of printing. He also attended Capital Business College in Salem, and Haskell Institute in Lawrence, Kansas. He was completing a year's study of handwriting at Zanerian College in Columbus, Ohio, when he had an opportunity to come to Boston with the New England Mutual, and it was soon after that that the Institute acquired the services of this excellent penman.

A resident of Wakefield, Mass., Mr. Long was a prominent Mason and held many offices. At the time of his death he was vice-president of the Masonic Secretaries Association of Massachusetts. He is survived by three sons, Richard W., Jr., Gardner R., and Merritt D. Through the assistance and co-operation of Mr. Long's sons the Institute will be able to continue to provide, for its graduates, degrees representative of the high standards of workmanship initiated several decades ago by Mr. Long.



The inaugural lecture of the Edwin Sibley Webster Professorship was delivered at Walker Memorial, M.I.T., on February 11, 1954, by Professor Arnold Tustin (center), of the University of Birmingham, England. Professor Tustin, who holds the Webster Chair as Visiting Professor for 1953–1954, is shown here on the occasion of the lecture with Gordon S. Brown, '31 (left), Head of the M.I.T. Department of Electrical Engineering, and James R. Killian, Jr., '26, President of the Institute. The Review is pleased to present the text of Professor Tustin's lecture, "Electrical Engineering in a New Kind of University," in this issue, *page 351.*

M.I.T. Photo

Harold K. Barrows: 1873-1954

SORROWFULLY The Review records the death, at his Winchester home on March 15, of Harold K. Barrows, '95, Professor of Hydraulic Engineering, Emeritus, a nationally recognized authority on hydraulic engineering who served for 33 years on the faculty of the Department of Civil and Sanitary Engineering at the Institute. He was 80 years old.

Professor Barrows was born in Melrose, and following his graduation from the Institute was associated with the Newton city engineer, the Metropolitan Water Board, and the faculty of the University of Vermont before returning to M.I.T. in 1910 as associate professor of hydraulic engineering. Professor Barrows was named professor in 1921 and, following his retirement in 1940 was an honorary lecturer for three years.

A specialist in hydraulic water power, water supply work, and flood control, he was employed as a consultant by many state, public utility, and power commissions. He headed a flood control study in New England and New York, acted as advisory engineer for the New England District of the Reconstruction Corporation, and was regional consultant for the National Resources Commission. Professor Barrows was also the author of numerous books and papers in the field of hydraulics.

A past president of the Boston Society of Civil Engineers, he was a member of the American Institute of Consulting Engineers and the American Society of Civil Engineers, and a fellow of the American Academy of Arts and Sciences. Professor Barrows is survived by his son, Kilbrith Jordan.

National Safety and the Universities

IN an address at the luncheon of the 33d annual Massachusetts Safety Council Conference at Boston's Hotel Statler on March 22, James R. Killian, Jr., '26, President of M.I.T., spoke on "Universities Serve the Nation's Safety." Dealing with three comprehensive safety goals of the universities, Dr. Killian discussed physical and political safety against external attack, the economic safety of New England, and stressed the critical importance of intellectual and moral safety in our educational institutions. Excerpts from Dr. Killian's address are given below. On the topic of Military Defense, President Killian said, in part:

The first of these goals has to do with our military defense. This vast program impinges upon every aspect of our national life, including our universities, and particularly our universities here in New England. At the present time, institutions of Greater Boston have mobilized hundreds of scientists and other scholars who are working unselfishly, quietly, and patriotically to give the nation stronger defenses at lower cost. In fact this area has become one of the nation's largest and most important centers for defense research. For example, New England educational institutions are responsible for nearly one third of all of the research undertaken by colleges and universities for the military services. The Air Force recently announced that it had awarded research contracts totaling some $82,000,000 in New England and that this area "seems to have become our most important development area. . . ."

A large and urgent defense project now operated by M.I.T., the Lincoln Laboratory, is a dramatic example of how educational institutions can provide emergency service to the nation. It is also in the fullest sense of the word a major effort in the field of safety engineering, for the objective of the Laboratory is to assist in providing the nation with a more effective defense.

The second safety function of our universities is to strengthen our community and regional economy. I submit that in New England, in Massachusetts, and in Metropolitan Boston, our universities are important partners of management and labor in maintaining a vigorous economy. Out of the universities are coming directly new products, new industries, new wealth. . . .

Military strength and foreign alliances are not enough to guarantee the safety of the nation. The stamping out of subversion is not enough. These essential safety measures are but incidental to our central task of maintaining our national integrity, of protecting the coalition of ideas, concepts, and ideals which give our society its meaning, unity, and stability. Progress, peaceful adjustment to change, an acceptance of dissent, a repugnance for regimentation and enforced conformity, a belief in the supreme importance of the free individual – these have been the shared convictions which have held our nation together.

These shared convictions are the underpinning of our national loyalty. This loyalty comes not from fear, compulsion, or decree. It springs naturally from a sense of belonging, from a confidence and faith in one's country and one's self from a love of place, from the proud identification of one's self with a great heritage and a noble cause.

Our schools have a crucial responsibility to safeguard this aspect of our national integrity. They must exemplify our national ideals of equality, social justice, freedom, and individual dignity. They must cultivate and refine the moral idealism which is the cement of our society.

It *is* the responsibility of the university and the scholar to combat and denounce unfair and ignorant criticism, to resist the pressures toward stifling conformity, and to make clear the policies and goals of our universities. This I do with relish and happily with freedom. It is our still greater responsibility to protect and maintain inviolate the free and objective pursuit of truth which is the mission of the university. This mission is so deeply interwoven with our national safety, stability, and self-respect, that it must be defended against every encroachment.

Far more is involved here than protecting "academic freedom." Academic freedom somehow has come to connote academic privilege, which it is not. What is involved is the formulation, explanation, and protection of those tested means by which a free society most effectively preserves its past, creates its future, and prepares its young people to be its citizens, its experts, and its leaders.

We must make it clear that a voluntary association of free scholars pursuing truth freely wherever and however it may be found is the tested way of accomplishing this mission for our society.

It is the responsibility of our strong and stable institutions to demonstrate that this is true and to resist with courage and determination any distortion of their tested procedures.

It is the responsibility of our society to insist that our schools continue to be the sanctuary of the mind that is joyfully free so that they can continue to teach and perpetuate the freedom which is our nation's "supreme treasure." It is in the light of this responsibility that we can think of these institutions as one of the agencies most essential to the safety of our nation, our democracy, and our individual dignity.

Pierre S. du Pont: 1870-1954

As this issue of The Review goes to press, it is our sad duty to record the death in Wilmington, Del., on April 5, of Pierre S. du Pont, '90, who served for 35 years as a Life Member of the M.I.T. Corporation. He had been an emeritus member since 1951.

A former president of General Motors Corporation and president and chairman of the Board of E. I. du Pont de Nemours and Company, Inc., Mr. Du Pont, who was 84 years old, had been senior member of a noted family of industrialists. He was born in Wilmington in 1870, studied at the William Penn Charter School in Philadelphia, and in 1890 received the degree of bachelor of science at M.I.T. After several years' experience in the manufacture of explosives, Mr. Du Pont was named treasurer of E. I. du Pont de Nemours and Company in 1902. He became chairman of the Board of directors in 1915, and during World War I was president of the firm.

In addition to his many philanthropic activities, Mr. Du Pont served in Delaware as head of the Service Citizens for the improvement of social conditions; as a member of the State Board of Education; as state liquor commissioner from 1933-1938; and as Delaware's tax commissioner from 1924-1937 and 1944-1949.

Mr. Du Pont was a member of the American Philosophical Society and Phi Beta Kappa, and received the honorary degrees of doctor of laws from Lafayette and Delaware colleges in 1922.

1954 Open House

A CAPACITY crowd of some 20,000-25,000 people is anticipated for the 1954 Open House of the Institute. This biennial event will be held on May 8, between the hours of 12:00 noon and 7:00 P.M. This year Open House falls just one week after the Massachusetts State Science Fair. It is expected that a large number of science teachers and interested students participating in the fair will attend Open House.

The program of events will include lectures, demonstrations, and exhibits by the various departments and courses at Technology. There will also be a number of exhibits by many of the student activities. Several athletic events have been planned for that day, among them a crew race with some of the Ivy League schools. A concert by the M.I.T. Concert Band will be held in the Great Court.

The committee planning the 1954 Open House is composed of both students and Faculty members. Chairman of the student committee is David L. Vogel, '54, while Faculty advisory committee chairman is Douglas P. Adams, Associate Professor of Engineering Graphics. The biennial Open House reflects the combined efforts of the entire M.I.T. family and is designed to enable the public to achieve some idea of the functions of the Institute in the community and country at large. With this in mind, the committee has come to think of Open House as portraying "Tech Men at Work and Play."

Energy and the Printed Word

RECENT progress in radically new printing processes using photographic methods for setting type, and a discussion of nuclear and solar origins as primary sources of energy for the future, were the main topics of discussion at the 302d meeting of the Alumni Council on March 29. As President of the M.I.T. Alumni Association, Horatio L. Bond, '23, presided at the dinner meeting at the Faculty Club in the Sloan Building, attended by 137 members and guests.

As Secretary for the Association, Donald P. Severance, '38, reported a change in class affiliation for one alumnus. He also reported that, between March 2 and March 24, nine members of the Faculty or of the Alumni Association, had paid visits to Alumni Clubs in 11 cities, including the following foreign cities: Buenos Aires, Monterrey, Mexico City, and Montevideo. As recorded in the opening item in this month's Institute Gazette, also reported was the fact that a conference program had been scheduled for Alumni Day, June 14. The topic of the conference will be "The Next 10 Years."

It was also reported that, as of March 24, the Alumni Fund had 8,825 contributors whose total contributions for the year thus far amounted to $195,834. In amount, this is an increase of $16,000 over the same date a year ago; in numbers, this year's showing is 141 contributors ahead of last year's showing.

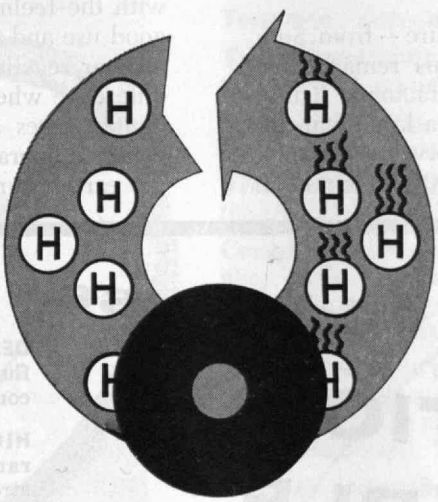
At the conclusion of the business portion of the meeting, Mr. Bond called upon the two speakers of the evening to inform the Council members of recent advances in two important phases of science and technology. Samuel H. Caldwell, '25, Professor of Electrical Engineering, spoke on "Setting Type by Camera" and outlined recent advances in which electricity and photography played a significant role in printing operations. Second speaker of the evening was George R. Harrison, Dean of the School of Science. His address, "Energy of the Future – from Sun or Atom?" was devoted to a broad inquiry of the most probable sources of energy of the future.

Dr. Caldwell outlined a new method of setting type in which photography and electricity were employed in a manner that could open vast new possibilities for improvement of operations and reduction of costs in typesetting operations. Instead of setting type by means of casting hot metal into characters, letter by letter or line by line, the new technique selects, stores, and justifies lines of type by an electrically controlled photographic process. A glass-plate matrix disk contains eight concentric circles of type, each half circle comprising a different font of type. Optical systems make it possible to control the size of type so that 16 different type faces, in about a dozen different sizes of type can be produced from the same machine in any desired order or combination, without loss of time in changing from one font or type size to another. The new process is the invention of René A. Higonnet and Louis M. Moyroud, and was developed in this country by the Graphic Arts Research Foundation,

(Concluded on page 360)

To our Colleagues in American Business . . .

For many years the electrical industry has been asking for larger and larger generators, in order to meet the tremendous growth in demand. However, two limitations have been imposed upon generator output. One is physical size, which is limited by the dimensions of railroad tunnels and bridges. The other is the problem of heat dissipation. Temperatures within the generator must be held down to avoid damage to insulation. Cooling the stator is not too great a problem, but removing heat from the spinning rotor is not easy. In the conventional design, heat flows from the copper rotor coils through the insulation to the steel rotor body, from which it is removed by a blast of air or hydrogen.



Since the insulation is a formidable barrier to heat as well as to electricity, it became evident long ago that some way should be found to cool the rotor coils directly instead of indirectly. Various methods were tried, with varying success. New and successful designs make use of extruded copper shapes. The shapes fit together in such a manner as to form hollow copper conductors for the rotor coils.

The idea was fundamentally simple, but as is so often the case, reducing it to practicality was not easy. Some said the shapes could not be extruded. Revere, however, tackled the problem, and collaborated closely with the generator designers over a period of months. Finally all requirements were adjusted, and production began. Specifications for the shapes are tight. They are extruded, drawn, and straightened. Tolerances are close. Finish is important, since irregularities would damage the insulation. Special techniques were found to make 90-degree bends in the shapes, to complete the coils. Today generators embodying these designs are in successful operation. This is another marked advance by the electrical industry, which has consistently achieved greater efficiency, lower costs, and cheaper power.

One of the important things to remember about this development is that ways were found to overcome all handicaps. Close collaboration among many men on both sides did the trick.

If you have an idea for product improvement, or a new product, let us suggest that you search among your suppliers for advice. If one says it can't be done, perhaps another may say it can, given mutual adjustments. Just realize that the difficult is not necessarily the impossible; it may just take a little longer.

REVERE COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

Executive Offices: **230 Park Avenue, New York 17, N. Y.**

SEE "MEET THE PRESS" ON NBC TELEVISION, SUNDAYS

THE INSTITUTE GAZETTE

(Concluded from page 358)

Inc. William W. Garth, '36, is president of the Foundation, and Dr. Caldwell, as director of research for the Foundation, has been responsible for developing the photon machine from the basic idea into its present commercial form. The first 10 machines to be put into use are now being completed.

Slides shown by Dr. Caldwell illustrated the precision of alignment of the characters, gave examples of composition of straight text matter, and indicated the manner in which lines could be varied in length and justified for flush margins on the right- or left-hand edges. Also illustrated was the ease with which vertical spacing can be accomplished.

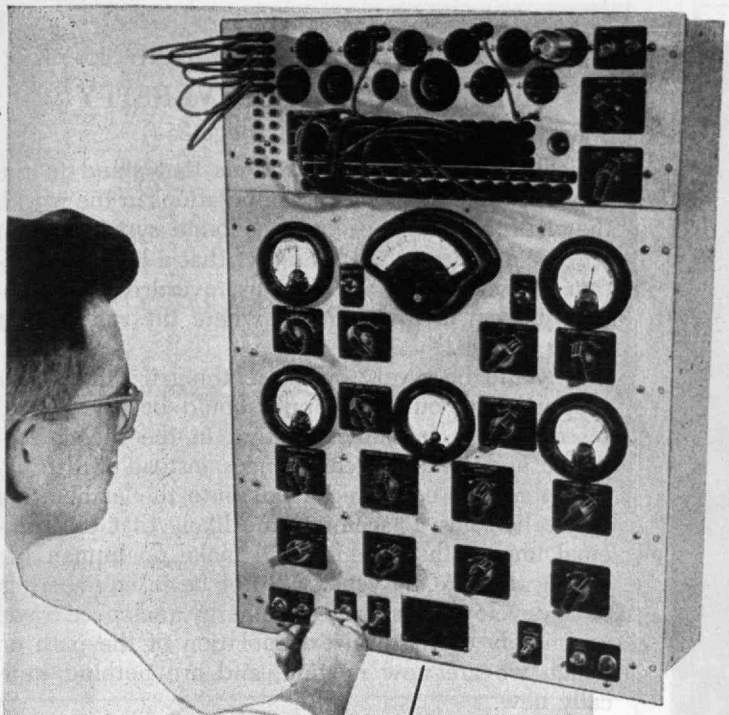
Further developments being pursued or contemplated are aimed to facilitate composition of technical material including mathematical equations, composition of musical scores, composition of "difficult" ideographic languages such as Chinese, and long-distance wire transmission, using one keyboard to control the composition consoles at remote points.

In speaking on "Energy of the Future – from Sun or Atom?" Dean Harrison opened his remarks by citing the importance of energy as a factor in fixing the standard of living. Even allowing a large margin for hidden deposits, gas and oil reserves are likely to be exhausted in from 100 to 1,000 years; coal reserves are not likely to last more than 2,000 to 5,000 years at our present rate of energy consumption. At best, water power cannot supply more than a quarter of our energy needs. It is obvious, therefore, that new energy sources should be investigated, and the direct utilization of solar energy and release of nuclear energy from atoms are the most promising solutions for future energy requirements.

Although engineers are confronted with different problems in harnessing these two sources of energy, basically they are alike. The important technological problem is that of utilizing solar or nuclear energy effectively, economically, and efficiently.

On the basis of present rates for power, the solar energy reaching each square mile of the earth's surface is worth $8,000 per day, even with an energy conversion efficiency of but 4 per cent. Means for using this energy are not economically feasible at the present time, but they might become so if the efficiency of energy conversion could be increased severalfold.

In conclusion, Dean Harrison raised the question: "Will solar energy or nuclear energy be the more useful form of energy for the future?" He did not answer his question directly, but left his audience with the feeling that perhaps both would be put to good use and that, since both were basically thermonuclear reactions in the final analysis, it made little difference whether we used such energy at the high temperatures at which atomic blasts occur, or the lower temperatures with which solar energy strikes the earth's surface.



LABORATORY FOR ELECTRONIC TUBES

WESTON

(686 Type 10A)

true mutual conductance

ELECTRONIC TUBE ANALYZER

(over-all Gm accuracy 3% or better)

Tests tubes under actual circuit operating potentials.

Tube characteristic operating curves can be plotted for comparison with manufacturer's specifications.

Transconductance can be measured directly without need for null adjustments or correction factors.

Voltage Ratio method of measuring transconductance meets the IRE Standard 50 IRE 7.S2 paragraph 7.2.2.4.

Completely self-contained with all necessary power supplies, meters and switching for performing short tests, static characteristic measurements and grid to plate transconductance measurements.

A well filtered d-c power source is supplied, making it possible to test tubes with d-c potentials which can be accurately adjusted to correspond to actual circuit voltage operating conditions.

Precision meter shunts and **multipliers** are wire wound to 0.5 per cent accuracy.

Special circuitry makes meter loading effects negligible.

Regulated grid bias supply keeps this most critical voltage constant. Plate and screen supplies do not affect grid bias setting.

Wide range of measurement of transconductance provides good readings on all tubes from small subminiature types to large power control types. The true transconductance is obtained on all triodes and pentodes, including low mu control tubes having plate resistance as low as 250 ohms.

Transconductance ranges are available in the following combinations of range and grid signal voltages:

Grid Signal	1.0	0.5	0.2	0.1	Volts
Gm x 1	300	600	1500	3000	Micromhos
Gm x 10	3000	6000	15000	30000	Micromhos

The *Gm x 1* range is especially useful in the measurement of subminiature tubes having low transconductance.

Reliability, Dependability and **Accuracy** assured by sound engineering, skilled manufacture and high quality components.

Descriptive literature on Model 686 gladly sent on request. WESTON Electrical Instrument Corporation, 614 Frelinghuysen Ave., Newark 5, N. J.

WESTON *Instruments*

7049

ELECTRICAL ENGINEERING IN A NEW KIND OF UNIVERSITY

(*Continued from page 354*)

logical conflicts, the superstitions that stand in the way of progress among vast populations in the world, the malfunctioning of our economic systems (both chronic and acute), and the fact that a large proportion of individuals are anxious, overdriven, or unhappy, even in those groups where the standard of living is high.

It would be a very desirable thing if a far larger proportion of our best brains could be diverted to research of a fundamental kind in the social, economic, and psychological sciences, instead of drifting, with the local economic winds, into the elaboration of mechanisms. It seems to me likely that the principal impact that science will make on human life during the next 50 years will not be in engineering. Such developments as atomic energy and space travel are merely the natural extrapolation of the path on which we are now moving, and are nothing radically new.

Importance of the New Understanding of Human Personality

I should imagine the big new impact will probably come from progress, now acquiring extraordinary momentum, in the field of human psychology. For the first time a coherent view of the nature of human personality is rapidly coming into focus. Like progress in many other fields, this new understanding, this flood of illumination, is coming about by the confluence of many streams that rise at diverse points.

Some of these feeder-streams have contributory sources in M.I.T. itself, as in neurology, in electroencephalography, and in those studies of group relations and psychology that are involved in any attempt to deal scientifically with problems of management. From other sources anthropologists have contributed data about the malleability of human nature, and its relationship to social tradition and to educational practices. Psychoanalysis has been revealing. Even animal psychology has given new light; it has contributed such useful concepts as innate behavior patterns, imprinting, and trigger mechanisms. Most revealing of all has been the close observation of children in the process of growing up. The main elements of personality formation, as

(*Continued on page 364*)

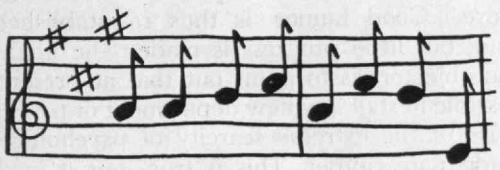
Telephones are very useful

Alexander Graham Bell - inventor

Uses of the telephone -

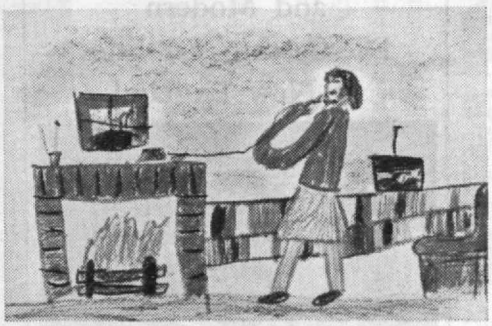
A. Business calls 1. Groceries
B. Friendly calls 2. Medicines
C. Ordering calls 3. Meats

Others, including military calls



(Tune - Yankee Doodle)

Telephones are very useful,
Of that we're aware.
So when you use the telephone
Just handle it with care.



When some one is in trouble you can call up people to help you. If some one is sick you can call the doctor. And if your house is on fire you call the fire department.

Some of the most interesting illustrations of the value of the telephone come from children. Here are a few, selected from many hundreds by grade-school pupils. They show imagination and a characteristic way of telling a story in a few words. Take, for instance, the words "Telephones are very useful." We couldn't sum it up better than that in a hundred years.

Bell Telephone System

LOCAL *to serve the community.* NATIONWIDE *to serve the nation.*

ELECTRICAL ENGINEERING IN A NEW KIND OF UNIVERSITY

(*Continued from page 362*)

related to the early years of infancy, are gradually being unravelled.

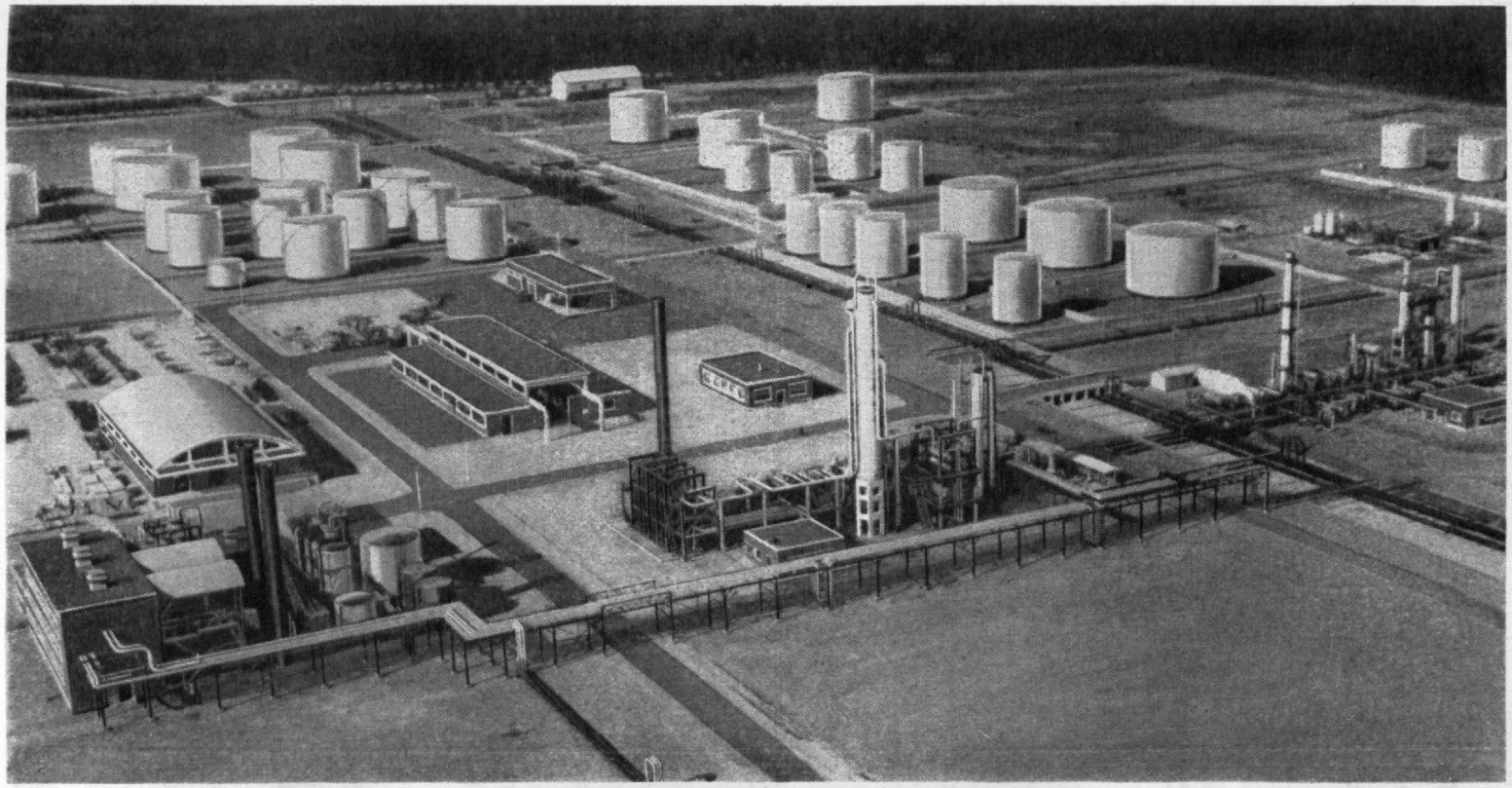
All such observations (as well as a good deal of acute logical analysis, such as in Gilbert Ryle's book, *The Concept of Mind**) are converging to establish a broad picture. We are witnessing the beginnings of a branch of science that will be as indispensable a part of our equipment for understanding the world as quantum mechanics is in understanding semiconductors.

I am well aware that there are some persons in academic circles from whom any serious suggestion that "a proper study of mankind is man" provokes the characteristic defensive reaction of a barrage of donnish humor, delightful in its way. Psychology, we are told, is merely "the study of the Id, by the Odd": and experimental psychologists are "the men who instead of conjuring rabbits out of hats get habits out of rats." The advocate of psychology tries to retaliate by saying that, "Philosophy is the consistent misuse of a nomenclature specially devised for the purpose." Good humor is thus re-established all-around, but little progress is made. The final ditch of the objectors is to point out that at present it is impossible to staff any new department of psychology because of the extreme scarcity of psychologists of any adequate caliber. This is true, but it is clearly an argument with two edges.

I am making a plea for the inclusion of human psychology (with the status of a branch of pure science) in our university of the future. I urge something much more than the employment of men, designated psychologists, who contribute to such studies as the aiming of guns or the increase of intelligibility in telephony. Psychology has its aspects as applied science in very many fields, including education, psychotherapy, management, salesmanship; it can help solve such engineering problems as traffic control or the design of control systems. Workers in these various fields are creating their own special concepts and terminology. What they all lack is an adequate common foundation such as can be provided only when human psychology is approached as a pure science. The motive should be the search for understanding, and the need to create the vocabulary that

(*Continued on page 366*)

*New York: Barnes and Noble, Inc., 1949.



Crude oil is piped to the Sarpom Refinery at San Martino di Trecate, Italy, from Savona on the Mediterranean.

ITALY'S NEW LOOK

The basic design of the "Sarpom" refinery, recently completed on the plains of Northern Italy, is the work of Stone & Webster Engineering Corporation, with detailed engineering, procurement and construction management by its affiliate, E. B. Badger & Sons Limited.

The refinery, having a capacity of 15,000 barrels per day, consists of crude distillation, reforming, treating and general facilities. Catalytic cracking and polymerization units are now being added.

These facilities for Societa per Azioni Raffineria Padana Olii Minerali, a Caltex-Fiat subsidiary, are among eighty new refinery units recently executed by our Badger Process Division.

Write or call us for information as to how our experience may be of assistance to you.

STONE & WEBSTER ENGINEERING CORPORATION

BADGER PROCESS DIVISION

AFFILIATED WITH E. B. BADGER & SONS LIMITED (LONDON)

New York Boston Chicago Pittsburgh Houston San Francisco Los Angeles Toronto

ELECTRICAL ENGINEERING IN A NEW KIND OF UNIVERSITY

(Continued from page 364)

will express this understanding. Just as the various branches of engineering require physics – with its temper of unrestricted enquiry and unification – as their common background, so various activities in applied psychology should be backed by strong departments of psychology in its pure science aspect. In its aim to reach understanding of the physical world, physics claims our efforts as scientists, irrespective of particular applications. So, even more, does psychology claim our devotion as a sustained and undeterable effort to understand the world of thought and feeling.

The advancement of psychology seems to me to be indispensable because all the problems that are really important involve human motivations. It is indispensable also as an element of broader education. Already, there is a certain characteristic split between the old school – who think about human problems in the concepts of the last decade – and those who think in the light of the concepts in which human personality is now coming to be understood. The difference of outlook is more radical than that between classical physics and modern physics. One could not be satisfied if the graduates of our university of the future should be able to discuss human problems only in the language of the middle ages.

The difference between a mere institute of technical studies and our university of the modern man may lie in this unqualified and unlimited interpretation of "the application of science to human purposes" so as to include such fields as psychology and ethics. Fully accepted, I believe that such interpretation would restore the sense of integrated purpose and the ethical basis that the universities once had, but have largely lost. Purpose has drained out between the clots of specialization into which modern universities have congealed. We all strive for something, but we know not what. Our minds become split. Our intellects are active, but we lose sight of our aims.

It seems to me, as it does to many people, that this split between intellect and purpose is at the root of our present discomforts. We tend to live in two distinct worlds that we cannot yet bring into relationship. With our scientific intellects we live in a strange world of atoms and nebulae, of statistical regularity and underlying chaos; a world of evolving organisms in which man in all his aspects appears as a product of the hazards of his evolution. In this intellectual view a man's values – his likes and dislikes, his purposes, and his ideals – are seen as elaborations of behavior patterns that originated in a blind struggle for survival.

But our more intimate personal lives move in a different world of flickering purpose and inner conflict and aspiration. The evolutionary progress of man has been due, not so much to his intellect, as to those equally unique faculties and emotional mechanisms that make possible the evolution of a social tradition which guides the individual's surges of impulse into a persisting pattern for social living.

(Continued on page 368)

Setting 'em down easy!

That's a trick requiring plenty of specialized experience. However, this scene at the great Shell Refinery at Houston, Texas, indicates only one facet of the Graver Construction Company.

From design to engineering, to construction and maintenance—Graver is prepared to do the whole job. Extremely flexible in approach, Graver builds not only for the petroleum industry, but for the chemical, steel and other basic industries as well.

Whether it be procurement or construction, setting machinery or plant maintenance, it will pay you to consider Graver—an old name in the petroleum industry... a respected name throughout industry.

GRAVER CONSTRUCTION CO.

332 S. Michigan Avenue, Chicago 4, Illinois

New York • Houston

a division of

GRAVER TANK & MFG. CO., INC.

NATIONAL CONSTRUCTORS ASSOCIATION

GRAVER ... *equipped to handle the entire job.*

ELECTRICAL ENGINEERING IN A NEW KIND OF UNIVERSITY

(*Continued from page 366*)

We are dimly but profoundly aware both of the necessity and the precariousness of this patterning of primary motivations, which is our morality. We tend to clutch at and defend whatever particular symbols our own society has fashioned to give it form and authority. Symbols of shadowy but permanent parent-figures sustain our particular hierarchy of good and evil and reinforce it with supernatural validity. This is man's spiritual world, where we debate a different kind of truth, in a language of symbols and in a logic that knows no syllogisms. It is with this world, more than with that of the intellect, that the educational process is chiefly concerned.

It has become a standard cliché of university oratory to distinguish between the world of science and the world of the spirit, with the implication that they are distinct and do not really interpenetrate each other. I do not think that this attitude is useful nor that it can be sustained. Split-mindedness will not do. It is a first task of a university for the modern man to clarify our approach to ethical values in the ever-brightening light of our scientific awareness, and to contribute to the evolution of an adequate formulation of ethics in the full light of the weekday teachings of science. When we take the application of science to the creation of a good society as our global theme of research, we are completely committed to clarifying what we mean by good, and so to relating the world of feelings and of valuing to the objective world of science.

This is not the place to discuss in detail how this will be achieved. Perhaps the core of the answer was expressed by the recently retired Professor of Philosophy at my own university, Professor L. Russell, who pointed out that science is concerned with *propositions* or statements about things, whereas ethics is concerned with *proposals* or suggestions that we do things. When there appears for the first time over the portal of our new university a *proposal* in simple English, "Let us build a better world," in place of some tag about the value of knowledge, then ethical education will indeed be on the way to integration with the teaching of a science school.

As a basis for educational philosophy, we must now recognize that intellect is and must be, by its very nature, a tool. What matters most are motives and purposes, and it is our business to understand them and to nurture them. Achievements in the physical sciences have made many things possible, both good and evil. The intellect is an organ of illumination, not of selection. At this stage of human progress, like travelers who have arrived through the darkness of night at some mountain hut, we watch the breaking of the scientific dawn. The light increases, the mists disappear, and the vast and intricate panorama ahead of us becomes visible; we are awed and elated. We plan our journey's next stage with the benefit of vision. But the direction of our journey and its goal are not given us by the landscape, they are choices we make. Our scrutiny and our mapmaking serve only to widen our choice of path. We must still choose whether our

(*Continued on page 370*)

Look for Cora Gated
on your corrugated boxes!

HINDE & DAUCH

SANDUSKY, OHIO

B.I.W. FLEXIBLE TV CAMERA CABLES

DESIGNED FOR SMOOTHER EASIER TROUBLEFREE OPERATION

- Teflon Insulated Coaxials
- Flexible Neoprene Jacket
- Flexible Neoprene Insulated Conductors
- Custom Quality
- Modern Engineering Design
- 15 Years of "Know How"
- Flexible Over Wide Temperature Range
- Small Diameter
- Easy to Manipulate
- Proven in the Field
- Physically Stable
- Lasting Toughness

Consistent leadership in design and construction of flexible multi-conductor cables—Radar cables—Ultra high frequency cables and many other specialized types. Let B.I.W. design cables for your particular application. Phone or write us for further information.

BOSTON INSULATED WIRE & CABLE CO. BOSTON 25, MASS.

ELECTRICAL ENGINEERING IN A NEW KIND OF UNIVERSITY

(*Continued from page 368*)

path shall be to the peaks or through the swamps, whether we shall press on, or stay, or go back.

I am suggesting for your consideration, therefore, that our new university for the modern man should give priority to breadth and human development rather than to the completeness of the technical syllabus. It should have a strong department of human psychology – with the broadest interpretation of that term – and a declared and completely accepted ethical basis in its aim of discovering how science may serve more completely man's true well-being.

Electrical Engineering in the Context of the New University

The guiding principle of directing efforts into channels most needed for human welfare would fit the separate technologies into a coherent whole. It would also give new inspiration in opening up potentially fruitful fields of research. Let me illustrate this by considering the work of a department of electrical engineering in the light of this concept.

Truly great are the contributions that the advancement of electrical engineering may make to a better future. This branch of engineering puts at our command physical energy and means of communication, and both are conditions for a fuller life. The whole research and teaching activities of such a department fit into and take more significance from a master theme of social purpose. Such a master theme can widen the scope of our field of research, and divert activity from trivial to vital things. Within my own field of interest in electrical engineering may I mention, as examples, just two topics that would certainly be emphasized by such a concept of the institution's purpose.

The first is the part that electrical engineering must play in eliminating poverty and ignorance – at once a menace and a moral challenge to the more advanced communities – from vast areas in the world. In general, these areas are not poor in resources or in the innate quality of their peoples. In these areas it is physically and economically possible to create great communities where basic material needs are assured and there is enough freedom from the daily pressure of want and sickness to permit of adequate education and the assimilation of a modern outlook.

In this process the development of electric power is basic. Primary industries, such as mining and metal extraction, depend on power. Agricultural advance depends on fertilizers produced by the electrical fixation of nitrogen if power is made available.

It is pleasing to think that much of the work of the Department of Electrical Engineering at M.I.T. is already contributing to such needs while simultaneously meeting needs nearer home. Studies now in progress relate to the economical development of water power, electrical power transmission, and machinery. Consideration of the needs of the undeveloped areas does, however, provoke appraisement of the importance of many further topics. One such

(*Continued on page 372*)

New kind of life insurance for children jumps 5 times in value at age 21 with no added cost

Have you a child or a grandchild between the ages of 1 and 15? If so, our new JUNIOR ESTATE BUILDER policy —nicknamed the "Jumping Juvenile" by our field men— will assure him $5000 of life insurance at age 21 for every $1000 you buy him now! . . . with no increase in cost and with no further proof of insurability.

You see, this savings-type life insurance automatically *jumps* to 5 times its original value when the youngster reaches 21, yet the annual premium does *not* change throughout the life of the policy.

Here's the ideal way to guarantee your child or grandchild a substantial amount of life insurance protection as he takes on grown-up responsibilities, with important cash values available for earlier education or later emergencies. Liberal dividends add materially to these values.

Your youngster is now at the life insurance bargain counter. The sooner you buy, the lower the rate. The sooner you buy, the less chance of his developing a health impairment that will later make him uninsurable.

For complete details just fill out and return the coupon.

NEW ENGLAND MUTUAL LIFE INSURANCE COMPANY
P. O. Box 333-R, Boston 17, Mass.

Please MAIL me, without obligation, information about your new JUNIOR ESTATE BUILDER policy.

*Name*_____

*Address*_____

_____

*Child's age*_____

The NEW ENGLAND MUTUAL

Life Insurance Company of Boston

THE COMPANY THAT *FOUNDED* MUTUAL LIFE INSURANCE IN AMERICA—1835

ELECTRICAL ENGINEERING IN A NEW KIND OF UNIVERSITY

(*Continued from page 370*)

broad field is electro-chemistry, including the production of nitrogenous fertilizers, alkalies, and the electrical extracting and smelting of metals. Perhaps also a new attack should be made on the problem of converting chemical energy directly into electrical energy in the carbon cell or the like. Success in this field would circumvent that enemy of the power engineer, the second law of thermodynamics, and perhaps even make possible the use of solar energy via its fixation in tropical vegetation. Perhaps technical development might receive a new impetus by a genuine analysis of future social needs.

M.I.T. has already a nucleus of such research into the conjoint technical and economic needs of particular geographical regions in the Department of City and Regional Planning.

As a second illustration of how consideration of social needs may give new impetus to research and unite many specialists in common endeavor, may I take the problem of economic slumps and the need for a more stable working of our economies. At first sight this urgent need may seem to be outside the field of specialized contribution of an electrical engineering department, but this is not the case.

Everyone knows that great progress has been made during recent years in the creation of automatic control and automatic-regulating systems in engineering.

(*Concluded on page 374*)

ELECTRICAL ENGINEERING IN A NEW KIND OF UNIVERSITY

(*Concluded from page 372*)

The concepts and techniques developed by engineers and mathematicians for analyzing the behavior of such systems, do not stop short at automatic aeropilots and the regulation of nylon plants. New ideas, about regulation and stability – in the development of which M.I.T. played so large a part – are now working tools of the neurologist discussing the nervous system, of the biologist discussing the fluctuations of populations. In fact, they may be applied in all those situations (including economic systems) in which many quantities interact in complex interplay.

It appears that recession and boom, as well as means for making economic activity stable and well regulated, may be analyzed by the application of the engineer's methods of system analysis, assisted by the powers of modern types of automatic computer.

Here again is the kind of example where social need suggests an effort towards a solution that would harness together a team with economists, statisticians, mathematicians, and engineers in a joint effort to make us the masters of our economic mechanisms, instead of the slaves. It is in the possibility of such joint enterprises, in which all relevant knowledge is brought together, and effort is imbued with a common social purpose, that the word "university" finds its justification.

It must be pointed out again, however, that the assembly and fusion of knowledge creates powers, but it does not ensure that men have right or agreed purposes. The discovery of good and the emergence of common purpose are functions involving knowledge but having quite other roots. They emerge in discussion, in the communication of feeling, and in the continuation of the agelong striving for expression and symbolization of our values. A university should be, above all, a furnace for this alchemy.

In conclusion, I should like to be permitted to express on behalf of us all, especially to Mrs. Webster and to other members of Mr. Webster's family, our deep sense of the services that Edwin Sibley Webster gave, not only to his country, but to the whole world, in fostering technical education. The Webster Chair will be one more enduring memorial to a great and generous personality, and I believe it will make a noteworthy contribution to the full realization of this great concept of a university of the modern man.

ARCHITECTURE OF M. I. T.

(*Concluded from page 348*)

Danes in Denmark. Set apart by an old and traditional form of religious architecture, the chapel will be further removed from the present world by a moat which will surround the wall and reflect light from the water into the interior through arches upon which the chapel rests. A simple altar will be unadorned in keeping with the undenominational character of the chapel.

In the Institute's growth, since 1916, architects and engineers have been sensitive to the organic whole. They followed the original Bosworth scheme of creating a unified group, connecting different corridors, whenever feasible. It may not be a coincidence that the majority of architects of Technology buildings received their training at M.I.T., taught in the School of Architecture and Planning, or hold teaching positions at the present time. In addition to drawing upon its own architectural staff, the Institute has sought advice from heads of departments and other members of the faculty so that buildings could be designed with direct reference to the practical needs they were intended to serve.

Throughout the history of its building, M.I.T. has adhered to principles that have produced a unified and compact grouping of structures. From the days of its establishment in Cambridge the need for future buildings was foreseen. Additions became unobtrusive parts of the whole, while within each unit flexibility has been permitted when consistent with use. Tradition as old as Jefferson's University of Virginia has led us to accept the Roman architecture of Bosworth as proper for college buildings. The trim form of later structures that plainly denotes their function also pleases our sense of fitness. Nor are the two styles totally uncongenial; both express their purpose in simple lines, both are well proportioned and aesthetically satisfying.

IS THERE A LIMIT TO HUMAN LIFE?

(*Continued from page 350*)

tellectually, and politically may be open to question, but they certainly have matured chronologically. Today more than a quarter of our population is in the age group of 45 years or more, but in 1900 only 18 per cent was in this age category, and in 1850 only about 12 per cent. Today, as a direct result of our noteworthy accomplishments in life extension, we have more than 10,000,000 persons living at the age of 65 or over, whereas in 1900 there were only about 3,000,000 persons in this age group.

Throughout most of its history the population of the United States has been characterized by its youthfulness, but this is no longer the case. If the present rate of increase of older persons continues, as it should (barring atomic warfare or some other unforeseen disaster), the close of the present century will see more than 20,000,000 older individuals in the American population. By then the average span of life should be far beyond the proverbial three score and ten years.

(*Concluded on page 378*)

IS THERE A LIMIT TO HUMAN LIFE?

(*Concluded from page 376*)

More Americans are now living longer, and possibly better, lives than their ancestors, but after they reach later middle age they do not live appreciably longer than the peoples of the past who managed to survive to this age. Most of our gains in life extension have been achieved by the prevention, or the postponement, of deaths in the earlier periods of life. This does not mean, of course, that an individual is doomed when he arrives at the age of 68, the terminus of the present average American life span, for even at that age he still has an expectancy of life of another dozen years or so, according to the tables compiled by the experts. His chances of living to or beyond 100 are, however, no better than they were in the days of the Roman Empire. At that time, incidentally, the average length of life is estimated to have been only 22 years.

Why, then, do some individuals live so much longer than others? The answer to this problem has intrigued scientists and philosophers throughout the ages, and numerous theories have been advanced to explain differences in longevity. Centenarians are, of course, always asked as to what they attribute their great ages, but invariably their answers are a bit weird, often absurd, and completely lacking in uniformity. In the olden days the few favored persons who attained to great old age undoubtedly did so through the operation of the law of the survival of the fit, but in our modern sanitary civilization the achievement of unusual old age is probably largely a matter of heredity and – luck.

If it was the custom of your ancestors to live long, your own chances of doing so are thereby enhanced, provided that you were born without any serious hampering physical defects, and that you are competent or fortunate enough to escape and avoid infections, accidents, homicide, poisons, nutritional deficiencies, mental disorders, and the numerous other hazards, perils, and casualties of our somewhat frenetic modern civilization. Heredity seems still to be the dominant factor in longevity, although it may be modified to some extent by environment.

"Father Time," wrote Charles Dickens, "is not always a hard parent, and, though he tarries for none of his children, often lays his hand lightly on those who have used him well."

PROFESSIONAL CARDS

JACKSON & MORELAND
Engineers and Consultants

DESIGN AND SUPERVISION OF CONSTRUCTION
REPORTS—EXAMINATIONS—APPRAISALS
MACHINE DESIGN—TECHNICAL PUBLICATIONS

BOSTON NEW YORK

LESSELLS AND ASSOCIATES, INC.
RESEARCH—DEVELOPMENT—TESTING—CONSULTATION
Mechanical Design and Analysis

916 Commonwealth Avenue Boston 15, Mass.
BEacon 2-2380

P. E. Kyle '39 T. A. Hewson '45 C. H. Kano '43
R. F. Brodrick '48 A. A. Kheiralla '47

EADIE, FREUND AND CAMPBELL
CONSULTING ENGINEERS

500 FIFTH AVENUE NEW YORK 36, N. Y.
Mechanical — Electrical — Sanitary
Air Conditioning — Power — Process Layouts
J. K. Campbell, M.I.T. '11

GIVEN BREWER
Consulting Engineer

Electric Strain Gage Analysis • *Stress Analysis*
MARION, MASS. TEL. 103, 110
G. A. Brewer '38

THE KULJIAN CORPORATION
Consultants • Engineers • Constructors
UTILITY • INDUSTRIAL • CHEMICAL
1200 N. Broad St., Phila. 21, Pa.
MEXICO CITY • CARACAS • MADRID • ROME • ATHENS • TOKYO • CALCUTTA •
H. A. Kuljian '19 A. H. Kuljian '48

FABRIC RESEARCH LABORATORIES
Incorporated
Research, Development and Consultation for Textile and Allied Industries

665 Boylston Street Boston, Mass.
W. J. HAMBURGER, '21 K. R. Fox, '40 E. R. KASWELL, '39

GILBERT ASSOCIATES, INC.
ENGINEERS • CONSULTANTS • CONSTRUCTORS
READING, PA.
Malcolm G. Davis '25, *Vice President* Allen W. Reid '12, E. C. Edgar '35
Steam, Hydro, Diesel Power Plants; Industrial Structures; Plant Safety, Labor Relations, Utility Rates, Valuations, Reports; Large Scale Purchasing; Industrial Laboratory
New York • Philadelphia • Washington
Rome • Manila • Medellin

FAY, SPOFFORD & THORNDIKE
Engineers

Charles M. Spofford, '93 Ralph W. Horne, '10
John Ayer, '05 William L. Hyland, '22
Bion A. Bowman, '09 Frank L. Lincoln, U. of Me., '25
Carroll A. Farwell, '06 Howard J. Williams, '20

AIRPORTS — BRIDGES — TURNPIKES
WATER SUPPLY, DRAINAGE AND SEWERAGE
PORT AND TERMINAL WORKS

BOSTON NEW YORK

CLEVERDON, VARNEY & PIKE
Consulting Engineers

HERBERT S. CLEVERDON '10 WALDO F. PIKE '15
Structural Designs Foundations
Heating Ventilating and Plumbing Designs
Industrial Buildings, Reports, Investigations

120 TREMONT STREET BOSTON 8, MASS.

MAURICE A. REIDY
Consulting Engineer

BRIDGES BUILDINGS
STRUCTURAL DESIGNS FOUNDATIONS
CONSTRUCTION CONSULTANT AND ARCHITECTURAL ENGINEER
Estimates and Appraisals
101 TREMONT STREET BOSTON, MASS.

CHARLES NELSON DEBES AND ASSOCIATES
ENGINEERS AND CONSULTANTS
Plant Layout — Electrical — Mechanical
Structural — Sanitary — Acoustical

ROCKFORD TRUST BLDG. ROCKFORD, ILL.
C. N. DEBES '35

MORAN, PROCTOR, MUESER & RUTLEDGE
CONSULTING ENGINEERS
Foundations for Buildings, Bridges and Dams; Tunnels, Bulkheads, Marine Structures, Soil Studies and Tests; Reports, Design and Supervision

WILLIAM H. MUESER '22 PHILIP C. RUTLEDGE '33

CHARLES A. MAGUIRE & ASSOCIATES
ENGINEERS

PROVIDENCE BOSTON

Cohasset 4-1020 Hingham 6-2360

FRANK MASSA
Electro-Acoustic Consultant

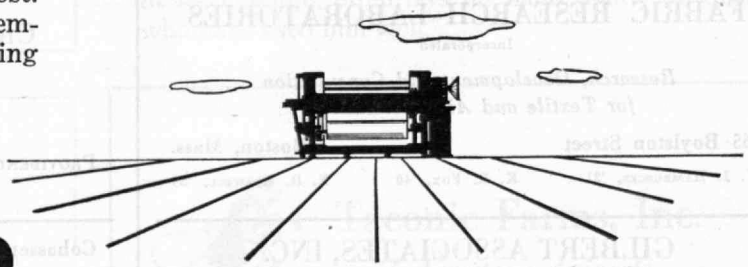
373 Atlantic Avenue 5 Fottler Road
Cohasset, Massachusetts Hingham, Massachusetts

ECONOMIZE - Modernize with Draper!

THE ATLANTIC CITY EXHIBITION again pointed up that Draper is retaining leadership through research.

Design changes reflect the continued efforts put forth for a flexible, durable, dependable loom with a low operating cost. Increased efficiency from machine and employee means savings to the mill operating new Draper looms.

Add Draper service and service technicians to these improved products and it is easy to foresee your next move. Your Draper representative will soon be calling. Let him explain these added values.



DRAPER CORPORATION

HOPEDALE, MASSACHUSETTS

ATLANTA, GA.
GREENSBORO, N.C.
SPARTANBURG, S.C.

Alumni AND Officers IN THE News

Professional Honors

CLARENCE D. DAVIS'35, of the Duke University School of Medicine, has been appointed professor of obstetrics and gynecology. The Department of Obstetrics and Gynecology is a new department which will be established on September 1, 1954.

RICHARD P. FEYNMAN'39 was selected as winner of the Albert Einstein Award. The award is made every three years for an outstanding contribution to knowledge in the mathematical and physical sciences.

RICHARD W. JOHNSTON'47 has been cited by the Junior Chamber of Commerce of Lawrence, Mass., as one of the 10 outstanding young men in the federal service.

PIETRO BELLUSCHI, Dean of the School of Architecture and Planning, received the American Institute of Architects' Award for the best article in a professional architectural magazine in 1953.

KARL T. COMPTON, Chairman of the M.I.T. Corporation, was awarded an honorary degree of Doctor of Science in technology, by Technion, Israel Institute of Technology.

J. HARVEY EVANS, Associate Professor of Naval Architecture, will assume office in May as Chairman of the New England Section of the Society of Naval Architecture and Marine Engineers.

PHILIP FRANKLIN, Professor of Mathematics, was elected to a three-year term on the Board of Governors of The Mathematical Associaton of America, Inc.

THOMAS A. STAUDT, Assistant Professor of Marketing in the M.I.T. School of Industrial Management, is the winner of a 1953 American Marketing Association Award for a significant contribution to the advancement of science in marketing in the field of marketing channels and institutions.

WALTER C. Voss'32, retired head of the Department of Building Engineering and Construction at the Institute, has been named a member of the Materials Advisory Board within the National Academy of Sciences, National Research Council.

Plaudite

EVERETT ST. JOHN'13 has been made a director of the Danielson Manufacturing Company, Danielson, Conn.

ALFRED V. COLEMAN'15 has been promoted to a vice-president of the New England Electric System.

ALLEN S. KING'22 was elected president of the Northern States Power Company in Minneapolis, Minn. Mr. King assumes the reins of the company in the midst of the largest building program in N.S.P. history.

DONALD G. VAUGHAN'25 has been made secretary of the Aetna Casualty and Surety, Aetna Life Insurance companies.

RICHARD L. CHENEY'27 was appointed director of the new Market Research and Promotion Division of the Glass Container Manufacturers, Inc.

JAMES B. FISK'31 has been elected vice-president in charge of research for the Bell Telephone Laboratories. The appointment was effective March 1.

Captain PHILIP W. SNYDER'32, U.S.N., was appointed shipyard commander of the Boston Naval Shipyard in February.

EDMUND Q. SYLVESTER'34 was made president of the Griffin Wheel Company, which is a subsidiary of American Steel Foundries.

Colonel PAUL E. LADUE'38 was appointed Chief of Second Army Engineers by Second Army Headquarters.

RALPH J. SLUTZ'38 has been appointed assistant chief of the Central Radio Propagation Laboratory of the National Bureau of Standards. Dr. Slutz was formerly a consultant to N.B.S. in the fields of electronic computers and mathematics.

Scientific Sessions

M.I.T. Alumni and members of the staff who participated in the Spring Meeting of the Optical Society of America during the week of March 25 in New York City are as follows: ARTHUR F. TURNER'29, DAVID L. MACADAM'36, JOHN J. HANLON '37, DOMINA EBERLE SPENCER'39, EDGAR E. BARR, 2–44, NELSON L. ALPERT'48, NISSON A. FINKELSTEIN'49. GEORGE R. HARRISON, Dean of Science, and GEORGE W. STROKE, Division of Industrial Coöperation.

At the annual National Convention of the Institute of Radio Engineers, which took place in New York City on March 22 to March 25, the following M.I.T. Alumni and members of the staff participated in the program with addresses at various sessions of the meeting: RICHARD H. RANGER '11, ARTHUR L. SAMUEL'25, RICHARD W. CARLISLE'26, BOMANJI WADIA'26, ADOLPH WARSHER'32, FREDERICK J. ALTMAN'37, MYRON H. NICHOLS'39, NORMAN R. SCOTT'40, ROBERT M. FANO'41, RALPH B. DE LANO, JR., '41, NATHANIEL ROCHESTER'41, DAVID L. ARENBERG'42, DAVID DETTINGER'42, FRANKLIN HUTCHINSON'42, SANFORD C. PEEK'42, JAMES B. ANGELL, 2–44, EUGENE W. SARD, 2–44, ROMEO R. FAVREAU'45, THOMAS P. CHEATHAM, JR., '47, WILLIAM N. COFFEY'47, KENNETH H. FISCHBECK'47, ER CHUN HO'47, STANLEY P. LAPIN'47, WILLIAM H. KAUTZ'48, DAVID F. WINTER'48, OSCAR J. VANSANT, JR., '49, RONALD E. SCOTT'50, THOMAS J. CARROLL and DANIEL A. SPAETH, both of the Division of Defense Laboratories, NORBERT WIENER, Professor of Mathematics, and JEROME B. WIESNER, Professor of Electrical Engineering.

In The News

A complete set of the Proceedings of the Institute of Radio Engineers was presented to the Tokyo University, on March 23, on behalf of HAROLD B. RICHMOND'14, member of the M.I.T. Corporation and Chairman of the Board of the General Radio Company. Since there are practically no complete volumes of the Proceedings of the Institute of Radio Engineers in existence, the presentation, made by U.S. Ambassador John M. Allison, was an example of the best type of co-operation between the two nations. The Proceedings were accepted as representing the good will of the entire American nation toward the Japanese.

Obituary

ANNIE G. ROCKFELLOW'89, January 17.
PIERRE S. DU PONT'90, April 5.
PHILLIP MARQUAND'91, February 14.*
RICHARD E. MESERVE'93, July 21, 1953.
WALTER V. BATSON'94, January 28.*
ALAN A. CLAFLIN'94, January.
EDWIN F. HICKS'94, April 28, 1953.*
HAROLD K. BARROWS'95, March 15.
GEORGE T. MCKAY'95, December 23, 1953.*
ACHILLES H. PUGH'97, March 28.
LUTHER R. SAWIN'97, May 18, 1953.
ALBERT W. GRAY'98, March 1.
JOHN A. MCKENNA'03, September 27, 1953.
WILLIAM H. EDGECOMBE'04, March 12.
WALTER F. STUTZ'04, December 3, 1953.*
GEORGE M. HENDERSON'06, February 17.
MARCUS J. COLE'09, February, 1954.
CHARLES ALMY'10, January 22.
WILLIAM J. KEEFE'10, March 14.
CHARLES A. MAGUIRE'11, March 24.
GEORGE A. UPTON'11, March 24.
L. JUAN MATAMOROS'12, November 7, 1953.
I. RICHARD PARIS'14, February, 1954.*
ARTHUR F. BENSON'17, November 30, 1953.
FREDERICK BERNARD'17, April 1.
WILLIAM R. MACLEOD'18, February 21.
J. ERNEST D. CLARKSON'21, February 16.
CLARENCE H. POWELL'21, May 13, 1951.
RALPH L. RUTHERFORD'21, January 29, 1952.*
DAVID J. ROACH'22, December 27, 1953.*
EDGAR E. KELLEMS'25, December 22, 1953.*
ANTHONY J. KILLGORE'25, November 13, 1953*
LERMOND F. SIMONDS'25, April 7.*
ROBERT E. MATTSON'26, March 13.*
HOWARD W. MILLER'29, May 23, 1953.
EDWARD A. HAMACHER'41, March 25.
MARK E. SULLIVAN'47, February 19.
NORMAN M. ARNSTEIN'48, February 27.
DAVID D. DAVIS'52, June 11, 1952.*

* *Mentioned in Class Notes.*

News from the Clubs and Classes

CLUB NOTES

M.I.T. Association of Baltimore

Congratulations are in order for Richard L. Steiner'39, who, for the past eight years, has been director of the Baltimore Redevelopment Commission, on his acceptance of the position of Deputy Administrator of the Housing and Home Finance Agency's division of slum clearance and urban redevelopment in Washington, D.C. The Baltimore Sunday *Sun* of March 7, 1954, printed a long article about Dick's achievements and scholastic history. He started his new job on April 1, and the Baltimore Club regrets that it has lost its Vice-president and good fellow, but wishes him much success in the future. You're only 40 miles away, Dick, so don't forget to stop in once in a while and see us. — Randolph J. Petersen'27, *Secretary-Treasurer*, 4007 Deepwood Road, Baltimore 18, Md.

Boston Luncheon Club

A total of 69 members and guests attended the fourth meeting of the 1953–1954 season, which was held at the usual place, the Union Oyster House, on January 21. Eli Shapiro, Professor of Finance, spoke on "Monetary Policy."

Prior to 1929, the sole control that the government had over economic activity was exercised by controlling the cost of money through various actions of the Federal Reserve System. This method lost stature, beginning in 1930, because a series of mistakes that the Federal Reserve Board had made before that year aggravated the decline in business, and because the Board's subsequent actions designed to prompt a recovery were unsuccessful. The feeling became widespread that the central banking system could put the brakes on all right, but that it could not do anything that would push us out of the trough of a depression. As a result, a new governor, and fiscal policy, is not too precisely defined, but, as used here, it means a deliberate manipulation of the balance between government receipts and expenditures, creating a cash deficit or surplus, as the case may be, in an effort to control fluctuations in the level of economic activity. For some time, it was regarded as a very powerful tool in achieving this objective.

After World War II, however, monetary policy came into its own again after a lapse of over 20 years. In the post war years up to 1951, the cash budget was balanced for the most part, but we still had a serious inflation. This failure of fiscal policy to act as a control is attributable to the fact that the private components of the economy, business and individual consumers, engaged in deficit financing, went into debt, even though the government debt was no longer increasing. The desire of the Treasury to keep interest rates low in order to lessen the burden of the debt prevailed and forced the Federal Reserve Board to support the prices of government bonds by heavy purchases above par. These purchases increased bank reserves and the money supply, and thus made private deficit financing easy. Under the famous accord of March, 1951, between the Treasury and the Federal Reserve Board, the Board quickly regained its freedom of action.

In the spring of 1953, the new administration put bank reserves under pressure, which tightened the supply of money and raised its cost. Both rising mortgage rates and tighter installment terms followed, and business began to feel the pinch. By late June, the Board became afraid of a depression and reversed itself by pumping reserves into the banking system, with the result that interest rates have fallen again.

How successful will monetary policy be as a stabilizing tool? Professor Shapiro is skeptical of its efficiency for a number of reasons. One is that the record of the Federal Reserve Board's actions, since its inception in 1913, has been poor. For example, from 1914 to 1951, there were six upswings in business when the Board should have tightened credit, but in four of these instances it eased credit instead. Similarly, over the same period there were six downswings. The Board took the right action in three cases and the wrong steps in the other three. Two specific instances may be of interest. In 1928 the F.R.B. made more money available; while in 1931, in the midst of a depression, when it should have poured money into the economy, it actually made money tighter, thus precipitating the financial crisis of 1933. Professor Shapiro admitted, of course, that it is easy to criticize with the benefit of hindsight.

Another reason for doubting the worth of monetary policy as a stabilizing tool is that the Board gets into political trouble if it is successful in its contracyclical actions, as most people seem to like some inflation. A third reason is that the huge public debt nowadays makes it difficult for the central bank to act freely, because rising interest rates increase the carrying cost. A fourth reason is that monetary policy is less direct than fiscal policy. In this connection, Professor Shapiro would have the government cut taxes rather than increase spending when a downswing is to be fought, as it enables free citizens to choose areas of spending themselves. However, fiscal policy is slower in application than monetary policy because of the time necessary to get Congress to act on bills, and both are useful tools, which complement each other. — Vincent T. Estabrook'36, *Secretary*, B. Standish Ayer and McKay, Inc., 50 Congress Street Boston 9, Mass.

M.I.T. Club of Southern California

The annual meeting of our Club was addressed by Dr. Chauncey Starr, Director of Atomic Research at North American Aviation. At present, private capital is slow to get into the field of commercial power from this source due to the difficulties of shielding which in general depend on weight and also prevent the economic use in self-propelled vehicles. An exception is the submarine which can use the water surrounding it. The first atomic power plant will probably be built in the United States at the expense of the general taxpayer but from its actual operation manufacturers of turbines and generators might get into the field to sell their own products. England should be a logical location because the cost of fuel is much higher. In about 20 years it is likely that the total cost may be reduced so that atomic power can then compete. Another logical location is in undeveloped countries, as after an atomic plant is installed, there is very little supervision or care needed.

The fair sex was included in the invitations to the meeting, and among those ornamenting the occasion were Mesdames Atkinson, Beebe, Coleman, Cullison, Goldson, Golsan, Hamlin, Hiller, Karr, MacCallum, Niedhamer, Rollins, Starr, Sumner and Welles.

The officers for the calendar year of 1954 are — by unanimous acclamation — President William MacCallum'24, Vice-presidents Samuel E. Lunden'21, James S. Cullison'41, Secretary Philip A. Herrick '24, Treasurer Frederick W. Grantham'25, Assistant Treasurer Anthony M. Thormin '27, Assistant Secretary Arthur B. Marlow '29, Archivist Hiram E. Beebe'10. President MacCallum made a speech on the "State of the Union" — reporting an increase of 10 percent in memberships over the year before and the fixing of the annual dues at $5.00, which it is hoped will cover the financing of a scholarship from our area. Many interesting meetings were held in 1953 and many more planned for 1954. All Alumni are urged to send their dues to Treasurer Frederick W. Grantham, Room 520, Taft Building, 1620 North Vine, 28, in order to insure receiving all notices.

Present at the annual meeting were the following Alumni: Zenas M. Briggs'00, G. Huntington Clapp'03, Fred Crosby '03, Harry T. Rollins'04, Edward E. Bennett '07, Hiram E. Beebe'10, Henry C. Davis '11, Henry A. Babcock'12, Herbert H. Calvin'12, Page Golsan, Sr.,'12, David M. Hughes'15, Robert Welles'15, Bernard S. Coleman'19, James W. Reis'19, Samuel E. Lunden'21, David O. Woodbury'21, Marcus A. McClure'22, Jacob A. Elfenbein'23, Henry Y. Satterlee'23, Phillip A. Bates'24, Rockwell Hereford'24, Phillip A. Herrick '24, William H. MacCallum'24, Ralph B. Atkinson'29, Mrs. Frances Frazier'30,

Chauncey J. Hamlin, Jr.'31, Robert E. Hiller'31, Edward S. Clark'32, Milton Karr '32, Page E. Golsan, Jr.'34, J. B. Hendrick, Richard S. De Wolfe, James T. Blakistone '39, James S. Cullison'41, John W. Horner '41, Edwin V. Sumner'41, Eduardo J. Regalado'42, William R. Neidhamer'45, Victor Stanley, 2–44, Francis N. Kurriss, 2–46, John D. Goldson'47, Jay R. Willner '50, Donald McCool'53.

The Club is well pleased that Bill MacCallum will be president for the second year. His local faithfulness and his frequent trips East with contacts at Cambridge have strengthened our local Club greatly. This year promises to be full of achievements. Any member who has mislaid his local directory can secure an extra copy from the Secretary for $1.00, as long as the supply lasts.

The local Alumni were proud to be associated in this Club with James T. Holmes'14 when the recent announcement was made in all the Los Angeles and national newspapers of an educational fund of $18,000 by Holmes and Narver; $10,000 for four years at Tech, and $8000 for four years at Stanford. These go to graduates of secondary schools of this area who intend to specialize on the design and construction of commercial and industrial plants. Those chosen will be announced in these notes in the November issue.

In the recent *M.I.T. Alumni Make News* our Daniel E. Whelan'20 and David O. Woodbury'21 were mentioned for their inventions and the appointment as dean of Loyola College of Engineering, respectively.

Similar items regarding other Alumni will be welcomed. — HIRAM E. BEEBE, *Review Correspondent*, 1847 North Wilcox Avenue, Hollywood 28, Calif.

M.I.T. Club of Monterrey

The visits of distinguished personalities from M.I.T. this year and the two previous years have marked the most outstanding gatherings of Monterrey Alumni. On March 6 of this year, Mr. and Mrs. Julius A. Stratton'23, visited us, and a banquet was given in their honor. The wives of the Alumni attended this banquet. We had another reason to be happy on this occasion, H. E. Lobdell'17 and his fiancée, Miss Conchita Zambrano, who, we are happy to say, is a native of Monterrey, were also with us. During the banquet Bernardo Elosúa'23, President of the Club, expressed our satisfaction at having such distinguished visitors, Dr. Stratton made a most enthusiastic comparison between Monterrey Tech and M.I.T., and then referred to the most significant changes which have occurred at M.I.T. Afterwards, Dr. and Mrs. Stratton were presented with a crystal hand-cut with an inscription alluding to their visit.

Alumni present: Mr. and Mrs. Oscar Ancira'51, Mr. and Mrs. Manuel Llaguno 6–46, Mr. Hernán Rocha'48, Mr. and Mrs. Rodolfo Barrera'49, Mr. and Mrs. Juan Celada, 2–44, Mr. and Mrs. Julio de la Fuente'33, Mr. and Mrs. Rodolfo G. Gonzalez'34, Mr. Eduardo Belden'17, Alberto González'01, Mr. and Mrs. Eugenio Garza-Sada'14, Mr. and Mrs. Bernardo Elosúa '23, Mr. and Mrs. Camilo Sada'32, Mr. Eliot Camarena, 2–44. — Representatives of the Tecnológico de Monterrey: Mr. and Mrs. Guillermo Ahumada, Sub-director of I.I.I., Mr. and Mrs. José Emilio Amores, Director of Preparatory School Tech., Mr. and Mrs. Virgilio Garza, Jr., Member Board of Directors, Mr. Víctor Bravo Ahuja, General Director of Instituto Tecnológico de Monterrey. — Guests: Mr. Jesús Barrera, Miss Conchita Zambrano, and Mr. and Mrs. Collin Ostrander. — ELIOT CAMARENA, 2–44, *Secretary*, Apdo. 360, Monterrey, N. L., México.

M.I.T. Club of Northern New Jersey

The Club's Scholarship Committee, chairmanned by Donald D. Way'19, along with Thomas P. Pitré, Associate Dean of Students and Director of Student Aid at Tech, interviewed some 131 applicants from 76 various New Jersey communities at the Military Park Hotel in Newark on Friday and Saturday, March 26 and 27. Several Honorary Secretaries and Educational Counselors were also in attendance during those interviews of boys from their areas. However, the results of these interviews and the names of the recipients of the scholarships which were available will have to be listed in next month's column inasmuch as this information was unavailable at the deadline for handing in these notes.

It is interesting to note that the organization and operation of the Honorary Secretary-Educational Counsellor group in this Club is probably the best of any other M.I.T. Club. Certainly it is the largest in size; having 26 Secretaries and 35 Counselors. As "Ambassadors of Technology" in their respective communities, they interview and assist prospective students, and in other ways co-operate with the Administration of the Institute. One of these ways is to represent the Institute at Career and College Conference Days held by the various schools. For example, Saint Benedict's Preparatory School in Newark held a College Conference Day last January 14 in which 18 various colleges and universities were represented, including Tech. The afternoon was spent in talking with the students, and the evening with the parents. — RUSSELL P. WESTERHOFF'27, *Secretary*, 823 East 23rd Street, Paterson, N. J. JOHN T. REID'48, *Assistant Secretary*, 80 Renshaw Avenue, East Orange, N. J.

M.I.T. Club of Philadelphia

This month your club officers are responding to many requests of the membership and have made arrangements for a dinner dance to be held at the Llanarch Country Club, Manoa, Pa., on Friday evening, May 21. The dance committee is headed by Wiley F. Corl, Jr.,'39, who has assured us that he and the management of the Llanarch Club have done everything possible to provide everyone with a most enjoyable evening. All club members should have received details of the party by this time, but if anyone did not, it is suggested that he contact either Mr. Corl at 1108 Stony Lane, Gladwyne, Pa., COnshohocken 6-0575, or the Secretary. Let's all turn out and take advantage of this opportunity to strut with our ladies for a tremendous success. — WILLIAM H. BERTOLET, 3d'38, *Secretary*, 606 Highland Avenue, Glenside, Pa.

M.I.T. Club of Puerto Rico

On November 11, the club members and their wives had a luncheon meeting at the Caribe Hilton Hotel, consisting of fruit cup, filet mignon, green salad, parfait, and coffee. Members from all over the island were present. After lunch the President of the Club, the Honorable Judge Antonio S. Romero'12, opened the meeting by thanking the ladies for coming to the meeting and expressing his wishes to interest the Club in inviting the ladies more often to club activities, suggestion which was applauded by all present. He then asked the members to bring out their ideas for the Club for the coming year. Plans were discussed for numerous activities and the possible journey of a few members to the "Fiesta" of the M.I.T. Club of Mexico. Delegates were not appointed at the meeting. However, it was agreed that all members desiring to travel to Mexico to the "Fiesta" were to inform the Club of their intentions and proposed route of travel. The possibility of having a picnic during the winter months was discarded; nevertheless, it was generally accepted that during the summer months the Club should have a beach picnic.

After the meeting was adjourned most of the members stayed around telling stories of their days at Tech, some of them going back to the days when Tech was at Boylston Street. With the pleasant sea breeze and drinks that followed the meeting, the conversation with old friends prolonged the reunion till late in the evening. (The social reporter for his activity was Angel A. del Valle'43.) During the last Christmas Holidays, Richard Lane'54, George Dormer, Ronald Kurts and Matthew Veakensky, visited Ponce, as guests of Nereo Pierazzi'55. While in Ponce they were received and entertained by Luis Ferré'24, Carlos Ferré'28, and Herman Ferré'31, who showed them some of the various Ferré Industries operating in Ponce, including Ponce Cement Corporation, Porto Rico Iron Works, Inc., and Puerto Rico Asbestos Cement Products Corporation. They also visited Central Mercedita (manufacturers of Snow White Sugar), and Destilería Serrallés, Inc. (manufacturers of Don Q rum) where they met Juan E. Mayoral'29, Ricardo de la Torre '34, and some other Alumni.

They also attended a coming-out party for Luis Ferré's daughter, Rosarito, where they were able to meet a number of young men and girls from Ponce, and were also guests of Mr. and Mrs. Pedro Méndez, for cocktails at a gathering party in the Ponce Yacht Club. (The social reporter for this activity was Carlos Ferré'28.) The Club members were painfully shocked by the unhappy events that occurred in the House of Representatives of the United States on March 1, when a group of infatuated and misguided persons made an illogical attack on the Congressmen. Our President, Judge Antonio S. Romero'12, called a special meeting of the Board of Directors, to which club members were invited, to express officially the feelings of the Club, since that act is not, in any degree, a measure, or representation of the

nature of the peaceful, law abiding and democratic people of Puerto Rico. The adopted resolution reads as follows: The BOARD of DIRECTORS of the MASSACHUSETTS INSTITUTE of TECHNOLOGY CLUB of PUERTO RICO, at a meeting held on March 3, 1954, at San Juan, Puerto Rico, expressly for the purpose, drafted and approved the following statement to be issued and distributed profusely by the Secretary.

We want to inform our professional colleagues and friends in the mainland and throughout the world that we are deeply indignant of the shameful demonstration of a few so-called Puerto Rican "Nacionalistas" on March 1st in the United States Congress.

The outrage perpetrated by these "Nacionalistas" clearly demonstrated to the world their failure to convince, by democratic and legal means, the people of this island to believe in and vote for their political tenets. Furthermore, their irresponsible conduct indicates convincingly the urgent need for militant and continuous vigilance to protect and preserve our cherished way of life against a small group of fanatics who, if in power, would destroy the very foundations of our orderly and democratic development in all fields of human endeavor. — ANGEL SILVA, 2d, '31, *Secretary*, Box 6234, Santurce, Puerto Rico.

M.I.T. Club of South Florida

The Club held its annual meeting at Seven Seas Restaurant, Miami, on January 21, 1954. The following were elected to office for the ensuing year: Charles S. Symonds'35, President, Fred E. Mason'29, Robert Nedbor'37, and Scott J. Hoehn'47, Vice-presidents, Donald S. Whitmore'51, Secretary, and William Sussman'40, Treasurer. Committees were appointed as follows: Membership, Program, Publicity, Student Activities, Liaison (with other Alumni and professional societies), Constitution and Club History, and District. The last named committee consists of one representative in each of the four districts into which the area is subdivided, viz: Miami, Miami Beach, Coral Gables and Ft. Lauderdale, who are charged with the duty of maintaining contacts with members and Alumni in their respective districts, taking care of visiting Alumni, and so on.

On February 13 the members of the Club and their guests were entertained by the management of the General Motors Motorama with a conducted tour of the exhibits at the Dinner Key Auditorium, which ranged from automobiles to the latest in kitchen equipment. "Taxation without representation is tyranny" was the theme of a talk before the Club by John B. Orr, Jr., at a dinner meeting held on March 16 in Betty's Restaurant, Miami. Mr. Orr, a local attorney, is a member of a pioneer Miami family and the son of a former mayor of the city. He is presently a candidate for election to the state legislature. Mr. Orr cited the tremendous growth of South Florida in recent years, and pointed to the fact that, due to the antiquated state constitution, this area, with 82 per cent of the state's population, has only a 50 per cent representation in the legislature. As a result of this, many inequities exist in the distribution of state funds which are derived from taxation of all the people, several examples of which were described by the speaker. This results in higher local taxes and inadequate school and other county services. Mr. Orr urged his listeners to use the civic and political organizations to which they belong to induce the legislature to propose equitable revisions of the state constitution for submission to a referendum of the people.

Members and guests present at this meeting were: Charles S. Symonds'35, President; Mrs. Symonds; Scott J. Hoehn '47 and Robert Nedbor'37, Vice-presidents; Mrs. Nedbor; Don Whitmore'51, Secretary; Mrs. Whitmore; Bill Sussman '40, Treasurer; Mrs. Sussman; Kenneth P. Armstrong'10; Edward I. Mandell'21; Mrs. Mandell; Colonel Cecil G. Young'23; Lloyd J. Porter'24; Sidney Mank'37, Mrs. Mank; Robert E. Smith'41, a visitor from Harrisburg, Pa.; Donald L. Brown'51; Frederick R. Calkins, 2–46; Joanne Wayland; and Lita Gagnon. — DONALD S. WHITMORE, *Secretary*, 2191 S.W. 11th Street, Miami, Fla.

CLASS NOTES

• 1890 •

The Class continues to make front page news, with up-to-date photographs which indicate that these members are substantial gentlemen who are certainly not suffering from any wasting disease, and who, though decreasing their responsibilities, continue to hold an important place in their respective communities. Two years ago it was Dr. Curtis and the Greenfield, Mass., Hospital. Last year Greenlaw was honored for his 50 years of service to the city of Newport, R. I.; and now from the Belmont, Mass., *Citizen* comes the news that Charles Sherman has retired from his position as president of the Belmont Savings Bank after 16 years of service, during which the assets of the bank increased from three to 11 million dollars. Charles very modestly states this is "due to the growth of the town and the ability of the Treasurer," but we note he has been made vice-president and expects to spend two hours a day at the bank. For several years he has been a sufferer from arthritis, but he reports his "general health is good." The Class is proud of these able men, and a number of others, who have continued active in responsible positions well after passing three score and 10.

Our Assistant Secretary is helping on class contacts, and through him we have heard from Franklin Knight and Bert Davis. Knight writes: "I am grateful for the kind birthday greetings. They find me pretty well at 85, able to walk two miles or more up hill and down, and to drive my own car in suitable weather. The first M.I.T. graduate to desert the engineering ranks and to enter the ranks of the Christian ministry, now retired for 17 years from an active service of 41 years, I am the appointed Chaplain of our Home for Aged Women in Lenox, holding fortnightly services for them with frequent personal pastoral visits interspersed; continuing Treasurer for 25 years of the Supplementary Pension Fund of my Diocese, and for the past six years Secretary of the Berkshire Clericus, an office requiring of me more than it might appear. I live with my youngest son and his family, a classical graduate of Yale, who has redeemed his deserter-father by settling down in a stable position in the offices of the General Electric. Life has been, and is, pretty kind to me, barring only the void in it by the loss six years ago of my beloved helpmeet for 48 years. But none of us may expect to live on here forever."

Davis writes: "I appreciate your letter on my 86th birthday, I am in very good health and enjoy life from day to day. The only break in my family occurred a year ago when I lost my brother. I live with my daughter as I have been a widower since 1922." — GEORGE A. PACKARD, *Secretary*, 25 Avon Street, Wakefield, Mass. FRANK M. GREENLAW, *Assistant Secretary*, 36 Bull Street, Newport, R. I.

• 1891 •

Your Secretary has to offer an apology for skipping the last two or three issues of The Review. However, you must not blame him entirely when you don't send him news to report. And furthermore, he has to explain that the overexertion which prevented him from attending the Class Meeting last June has kept him practically in the hospital ever since. The best he can say now is he hopes to be out and around again, with restricted movements, in the good summer weather. I think you will have to get an able-bodied secretary at the next meeting. Your Secretary has in his possession a box which he inherited from Henry Fiske, which includes many photographs of the members of our Class and professors. Also group pictures taken on outings and special occasions. There are also replies to questionnaires, some individual histories, and so on, and booklets giving names and known addresses of members, published from time to time, I believe, through the generosity of Harry Young. The distribution of these should be determined before many years.

Two items have come to my attention. One, the death of our classmate, Philip Marquand, on February 15, at a nursing home in Carlisle, Mass., after a long illness. Your Secretary visited him there a few years ago and found him very comfortably situated. He was a native of Newburyport, graduated from Harvard in 1889, was a member of Phi Beta Kappa, and then graduated with our Class. He was with a New York brokerage office for a short time and then joined the Edgemore Bridge Company of Wilmington, Del., as a structural engineer. He aided in the construction of the Panama Canal, and retired to his old home in Newburyport. He was the father of the novelist John P. Marquand, the only survivor in the family. We learn from the Worcester *Gazette*, that one of the old dependables at our class dinners, Carleton A. Read, and his wife were given a grand celebration of their 60th wedding anniversary at the Sheraton Hotel on January 25 by a large group of the members of their family. As I believe we all know,

he is now in retirement after 25 years as professor of steam engineering at Worcester Polytechnic Institute. – FRANK W. HOWARD, *Secretary*, Care of Bemis Associates, Inc., P. O. Box 147, Watertown, Mass.

• 1893 •

Our Secretary, Frederic H. Keyes, is resigning from his duties on April 1 and will reside with his daughter, Miss Nancy C. Keyes, 3021 West Mercer Way, Mercer Island, Wash. He is also retiring from his many years of service with M.I.T. Some few weeks ago Fred lost his wife, after a lingering illness, which hastened his decision to retire and go west to make his home with his daughter. Fred, as you know, became secretary of our Class upon the death of our esteemed classmate, Fred H. Fay, in 1944.

Fred tackled the job with his usual painstaking efforts and carried on the good work of keeping our classmates together and carrying on the duties which were handed to him by his predecessor. Fred gave much of his time, and his thoughts to keep up the spirit which has always governed 1893. Drop him a line at his new address, and I am sure that he will be delighted to hear from you. – GERTRUDE B. CURRIE, *Secretarry*, 11 Beacon Street, Boston 8, Mass. GEORGE B. GLIDDEN, *Assistant Secretary*, 99 Chauncy Street, Boston 11, Mass.

• 1894 •

Returning from a month spent at Orlando and Tampa, Fla., the Secretary is again at his desk in the Dorrance Building. An agreeable time was had in the land of sunshine, and an opportunity to see some of the large installations wherein oranges are packed, juice extracted and concentrated and frozen. Grapefruit are similarly treated but in far smaller quantity. Here is a great industry which had its inception about 10 years ago, and does not utilize nearly half the crop of oranges for the canned and frozen juices. The Secretary also had a glimpse of the greatly increasing cattle-raising industry in Florida.

My return to Cambridge was made sad by the news that Walter V. Batson, who has always been a loyal member of the Class and much beloved by his fellows had passed away on January 28 at the Newton-Wellesley Hospital, where he went after an illness of many months. Immediately after graduation in 1894 he became associated with French and Hubbard, Company, consulting electrical engineers of Boston. He was connected with this firm for more than 40 years, and retired in 1935. For many years he lived at 31 Loring Street, Newton, but about a year ago moved to a small apartment on Langley Road, because of increasing disability. A very quiet, friendly man, he had a host of friends both in the Class and among his professional associates. He was a life member of the American Institute of Electrical Engineers, and a member of the Masonic and Odd Fellows fraternities. His funeral was held on February 1 at the Williamson Chapel in Brighton. Batson leaves a wife, and a brother Arthur, a resident of Charlton. The deep sympathy of the Class is extended to them.

Another death, that of Edwin F. Hicks, of Lansdowne, Pa., must be here reported. Hicks transferred to the Institute from Columbia and joined the Chemistry Course in 1892. His association with the Class seemed to be terminated the year of our graduation, and as he did not receive the degree of the Institute and retained his association with his old friends at Columbia he had never participated in Class or Technology affairs. Information received through the Alumni Office states that his death occurred on April 28, 1953.

The Boston *Post* of January 31 carried a brief article accompanied by a picture of Charles G. Abbot, with the heading "He'd Put the Sun to Work." It mentions his invention in 1923 of an instrument so sensitive that it "could measure the heat from a lighted match 2,000 miles away," and later of another, using flies' wings, 10 times as sensitive. Other of Abbot's well-known accomplishments in the use of solar energy were featured. – SAMUEL C. PRESCOTT, *Secretary*, Room 16-317, M.I.T., Cambridge 39, Mass.

• 1895 •

From month to month your Secretary hopes to report some news items of the activities of the class membership, even though such news items are no more than as indication that some of us are still among the living. We regret to report the passing of George Theodore McKay, December 23, 1953. McKay had been with our Class during the years 1892 and 1893, and was registered in Course VI. The only record we have states his interest as treasurer, Sterns and McKay Company, Marblehead, Mass. December, 1943, found him living at 112 Pinckney Street, Boston, and in October, 1947, his home address was 384 Commonwealth Avenue, Boston. He seldom entered the activities of the Class after leaving Tech. Parker H. Kemble, who for many years lived in Marblehead, Mass., has moved to Belle Aire, Newcomb, Md. Dorville Libby, Jr., has moved from San Francisco to 733 Keeler Avenue, Berkeley 8, Calif. Joseph E. Walworth, has returned from his Florida sojourn to his home 8 Locke Street, Andover, Mass. Always remember that as long as your Secretary is able to function on this job, it is a pleasure to receive a line from all the mates of '95 – LUTHER K. YODER, *Secretary*, 69 Pleasant Street, Ayer, Mass.

• 1896 •

Spring will be well on its way when these notes as of March 4 come to view. As your Secretaries acknowledge the responses from the class letter which included the list of living classmates, it is evident that most of us will have passed the magic figure "80 years" come summer time. You have also expressed some degree of satisfaction in the possession of this list. We regret the errors, but your April Review will give the corrections. The New York '96 class dinner at the Commodore Hotel, on February 26 was attended by the following: Bakenhus – Finds his engineering interests active though somewhat curtailed. Freedman – Always interested in medical progress, is now taking on some of the modern languages; quite a philosopher. Ruckgaber – Retired, looking vigorous at 79. Bradley Stoughton – Though an emeritus professor in metallurgy, leads a very active life in continuing his professional studies, as well as outside interests. Tilley – Retired after years of creative studies in air conditioning of public buildings, especially hospitals, is enjoying a well-earned vacation in his Long Island home.

The following letters of regret were received from Coolidge and Litchfield – "Dear John: Sorry that I can't be with you all in New York on February 26. Dorothy and I are starting out in about two weeks to drive to Florida or southern Arizona to escape a little winter weather. We haven't quite decided which it shall be. Either feels like an awful let-down after last winter's trip to Africa. With kindest regards and best wishes to you and John and all the others. Sincerely, Bill (Coolidge.)" Bill, we are happy to report, is the author of an article entitled "A Plea for More Fundamental Research Effort" which was published in the January 22, 1954, issue of *Science*. From Paul Litchfield – "Dear John: I am sincerely sorry that I will not be able to attend the get-together luncheon of the Class of '96 on February 26 as I expect to be in Arizona at that time. However, I would appreciate it if you would give my very best wishes to my classmates who are in attendance. With kind regards. . . ." It was a very satisfying occasion. We affirmed our belief in holding an annual get-together during the exercises incident to Alumni Day. Turning over the plaque (given to Charles Locke on our 50th reunion) to the Alumni office, dignifies his service to the Class and the M.I.T. Alumni body. We regret the announcement of Gaylord Halls' recent incapacity which finds him in a nursing home under the care of his brother, Dr. R. W. Hall. We missed him at the New York dinner, where he was a regular attendant. A letter was received from Henry Hedge asking for the new list of members. He failed to receive his as he had been left off the list along with Bill Coolidge. He said, "Well, at least I'm in good company. Give my regards to all the boys and tell them I am still alive and hope to play golf in April." Word from Joe Harrington – "Dear John: Just think! I won't be 81 until next April, but I retired from active work on January 1. I still keep my office and go there Tuesday and Friday mornings. I consult with the sales department and advise on the engineering phases of cool utilization. Having a real good time – except arthritis in both knees! Sincerely hope you are well, Joe."

From Bradley Stoughton we received later word: "I have received this morning a letter from the secretary of the American Society of Metals saying that the trustees thereof had unanimously elected me an honorary member of the Society." Last but not least a telegram from Samuel Smetters – "My 60th (94) at Northwestern University will be June 12, special reunion. When will be the M.I.T. Alumni Day? I hope that I can attend both." For the benefit of all classmates who hope to attend the reunion, Alumni Day will be Monday, June 14. See you all then! – JOHN A. ROCKWELL, *Secretary*, 24 Garden Street, Cambridge 38, Mass. FREDERICK W. DAMON, *Assistant Secretary*, Commander Hotel, Cambridge 38, Mass.

• 1899 •

Richmond, Schmitt, Sherrill, Skinner, and Witherell attended the Midwinter Alumni Meeting at the Walker Memorial. Perhaps if a greater number of local classmates had known what a delicious steak dinner was to be served, the attendance would have been greater. The few times I have been privileged to attend these meetings I have been much inspired. These get-togethers are really peppy.

While visiting my sister in Melrose at Thanksgiving time I had a chance to attend a council meeting at the M.I.T. Faculty Club. As the meeting broke up I ran into Professor Emeritus Sam Prescott, who was instructor in biology in my freshman year, and with whom I have kept up a warm friendship ever since. To my greeting, "You don't seem to change much, Sam," I received the laconic reply "Mummies never change." Herman H. Smith suffered a stroke in November, 1952, and has been confined to bed at a Torrington, Conn., hospital.

Changes of address: Philip Burgess, at one time sanitary engineer in the Ohio State Department of Health, and subsequently in consulting practice at 568 East Broad Street, Columbus, Ohio, may now be found at 2015 West 5th Avenue in that city. The address of Wallace F. Goodnow, formerly living in Stamford, Conn., is P. O. Box 84, Bass River, Mass. Miles S. Richmond, Assistant Secretary, who for many years had his architectural office at 201 Devonshire Street, Boston, has now retired. His home is at 1793 Beacon Street, Brookline 16, Mass.

Thus far 10 classmates have signified their intention of attending the 55th reunion in June; four are doubtful and 16 can't come. This adds up to 30 answers from a total of 133. As soon as you fellows make up your minds, let your committee have an answer to the circular letter sent you. Better arrange to come and see how your Alma Mater has developed and what wonders she is accomplishing. Or are you going to wait for the 60th? — BURT R. RICKARDS, *Secretary,* 381 State Street, Albany, N. Y.; MILES S. RICHMOND, *Assistant Secretary,* 1793 Beacon Street, Brookline 16, Mass.

• 1900 •

As these notes are being written the April issue of The Review with announcement of this year's reunion has not been received. Consequently we have had no response to the announcement. We hope that many of the Class will go, and that you will let the Secretary know of your plans. The date is June 15 to 17. Ted Brigham writes that he is hoping to attend.

Chalmers writes that he has to report three more grandchildren. The last report we had was a year ago with a total of twelve. That makes the present count 15 — 10 boys and five girls. He asks how many of the Class are still living. The secretary's list shows 143 affiliates out of 370 of whom we have information. This includes 67 graduates out of 168. — ELBERT G. ALLEN, *Secretary,* 11 Richfield Road, West Newton 65, Mass.

• 1901 •

The response to the Class Letter has been very gratifying, and I have considerable material to draw from. However, those of you who have not replied, remember I am counting on you. I will begin with the news from Will Kelley, VI, of Winnetka, Ill. "Although I retired five years ago I am still serving as a director for a manufacturing company and doing some consulting work. I was sorry to see the names of some of my friends in your list of deaths. I hope that there will be enough to have a 55th reunion and that I can attend." Howard Wood, in Connecticut, sends me a picture from a G.E. 75th Anniversary Scrap Book which shows Dr. Willis R. Whitney and the members of his Research Laboratory in Schenectady, taken about 1904. Five from our Class are in the picture — Bill Arsem, Julie Ober, Ralph Robinson, Howard Wood, and Fred Sexton. Howard says: "As for myself, I am growing old gracefully (or disgracefully, depending on one's point of view). I still carry on as a member of the Board of Directors of the Rockville Public Library, and of the Board of Trustees of the Rockville High School. Just enough civic activity to keep from getting into a rut. From your Class Letter it looks as if you also are keeping out of one. More power to you, and thinks for keeping us informed about class news." Richard Dow, from Hamburg, N. Y.: "Retired 1946. Do some gardening, play some cribbage, take some rather extended auto trips, do some photography and, taken all in all, lead a rather useless existence. By the way, I can make the best pie you ever put a tooth to. Very best regards to you and all the boys. I always read your good letters with interest. It's good to know what all of the 'old coots' are doing."

From Fred Sexton, in Nova Scotia, comes one of his interesting dissertations. He says: "I have consolidated a satisfactory individual philosophy of life and am happily living according to its tenets. Medical check-up recently showed that cardiograms and blood tests indicate no serious physical deterioration so far and obituary notice will not be forthcoming in the near future. Recent personal obligations assumed are: Chairmanship Fish Committee of Fish and Game Association; Chairmanship of Professional Relations Committee of the Association of Professional Engineers of Nova Scotia; and, most important, election to the Board of Management of the United Baptist Church of the town."

Ted Davis, in Waterbury, Conn., sends this account of himself. "Still at work, mornings, on my historical research (a retired man's hobby) into the Button and Numismatic history of the Scovill Manufacturing Company from 1802 to about 1923. This is of some interest to the Company, celebrating its 150th anniversary in 1952, but even more to the ancient, and approximately honorable, aggregation of Numismatists and to the new, but highly efficient, association of Button Collectors. It took me to Boston, New York, Baltimore, Philadelphia, and Washington, and bids fair to beckon me onward to the Pacific Coast and points (frequently also disappoints) South and perpendicular in both directions. I am postponing the one downward until the last."

I was glad to hear from George Hall, IX, who lives at 2992 Lafayette Road, Portsmouth, N. H. He writes: "With nine children — all married — 22 grandchildren, our family is now down to two — self and wife. I was retired in 1929 but did some war work, 1943-1945. My 'auto' has been a self-propelled bicycle. We have a summer place behind the Ben Mere Inn in Sunapee, N. H. We are 4½ miles south of Portsmouth on route 1. Give me a ring 3074-M-5 when over this way."

The Alumni Office sent me the following clipping: "Antoine B. Campau, A.I.A., of Grand Rapids, has been made a member emeritus of the American Institute of Architects, its Western Michigan Chapter, and the Michigan Society of Architects, Peter Vander Laan, Chapter President, announces: Campau, a native of Grand Rapids, was graduated from M.I.T. and spent two years in travel and study in Europe. He became registered to practice architecture in Michigan when the original law went into effect in 1915. He had practiced in Grand Rapids since 1907. He is a partner in the firm of Robinson, Campau and Crowe." So much for this month, more later. — THEODORE H. TAFT, *Secretary,* Box 124 East Jaffrey, N. H. WILLARD W. DOW, *Assistant Secretary,* 287 Oakland Street, Wellesley Hills 82, Mass.

• 1904 •

As I take my trusty fountain pen in hand and attempt to produce something on March 11, 1954, which shall amuse, entertain, or otherwise occupy your minds nearly two months later, I am filled with misgivings for the letters from classmates which came in time to help out in the production for the notes in the March issue of The Review, have proved to be about all that has been heard from any of you. I do, however, remove my Stetson with a bow of gratefulness to Dwight Fellows, Jr., who has again come through in the clutch, this time from Bonita Springs, Fla., where he has been spending some time avoiding the excessive heat which has oppressed us here in New England most of the season which is usually called "Winter." Here is his letter written under the date of February 23:

"Dear Henry: I was glad to get your letter of January 23. I think our letters must have crossed as I had written you about that time. This is a quiet place but the fishing, swimming, and shelling are all good. Once in a while we get a little excitement. One day I went rattlesnake hunting in the Everglades but I did not get any. I heard one as I came into the dense jungle out of the bright sunlight, and I had my dark glasses but I did not see him. I had on my riding boots so that they could not take advantage of me and bite my ankles when I was not looking. The next day we caught a big alligator between nine and 10 feet long on a big hook we had baited with a chunk of mullet expecting to catch a large jewfish. I got so excited watching him roll over and lash around with his tail that I almost fell in with him. I went down to Marco yesterday at the head of the Ten Thousand Islands. It is a famous beach for shelling especially at low tide or after a storm when the stuff gets churned up. I got some things I wanted but also had six hours out in the hot sun, so added to my tan which

is already not bad. Yes, Henry, I am like you. I still enjoy my liquor and will drink any "given" amount, but unfortunately there is very little given. I have to buy my own. I feel, that in the interest of economy. shall have to do some research and learn how to make my own Bourbon. Give my best to Gus and Gene and Ed, and so on, when you see them. I probably will not see your latest epistle to the infidels (in the next Review) until I get back home. I shall be looking forward to seeing you in June but probably before as I plan to return around the first of April, I think."

In the March issue of The Review, we find an article written by Carle Hayward describing the mines and mining industry in New England. If you have not read it, I advise you to hunt up the March issue and read it for it is very interesting and reveals something about New England which perhaps is not widely known. Carle's article is masterly and, of course, was written in his spare moments, when not engaged in secretarial work on these notes or collaborating on the details of a 50th Anniversary. By the way, I talked with him yesterday (March 10) and he stated that the details and so on for the reunion events were due to be placed in the care of the Post Office Department on March 15. So as you read these words in May, you have doubtless received your copy and have signed on the dotted line, and we now know you are really coming in June.

Stan Skowronski recently addressed the Perth Amboy, New Jersey Historical Society on Copper Mining in New Jersey. The account was very interesting but like most of the mining in New England the operations were not very profitable.

I was amazed to learn from Carle's article that Course III (Mining) was dropped from the curriculum of the Institute in 1940. Carle and Dwight and 18 other members of our Class were members of that Course. It seems a shame that such a course which has produced many brilliant scientists in that field in the past should have been discontinued.

Of course as you read these notes, you now know all there is to know about the 50th Anniversary and its events. If you have already made up your mind to come, there is no more to be said to you. If, however, you are yet undecided, let these words of encouragement induce you to be on the "yes" side. And if you have (tentatively?) thought you would not come, why, for once, exercise that prerogative usually attributed to the fair sex and change your mind and decide to come. I can assure you, you will not regret it. I have had considerable experience in class reunions and I know. Again I call your attention to this fact that there will not be too many more of these affairs (certainly not a 50th) and that it is "time to enjoy yourself – it's later than you think." I'll be seeing you next month, won't I? Of course I will!

A card postmarked Winter Haven, Fla., February 24, reads as follows "Guy and Louise Palmer, Maynard and Martha Holcombe, Rich and Irene Sheafe, Lew and Mary Newell, residents and habitants of Florida, send greetings from their luncheon gathering to members and wives of the Class of 1904, M.I.T. and hoping to see them in June." Reggie Wentworth, now living in Frederick, Md., reports that he is working every day and probably will not attend the reunion. Once more we lose a member from our ranks. The Alumni Office reports the death of Walter F. Stutz, VI, of Chevy Chase, Md. No details have been received at this writing.

The spring meeting of the American Chemical Society will pay tribute to those who have been members for 50 consecutive years. The list includes three of our classmates, A. C. Downes, R. B. Sosman, and S. Skowronski. – HENRY W. STEVENS, *Secretary,* Whitney Homestead, Stow, Mass.

• 1905 •

During my six weeks of convalescence at home I wrote 34 letters in longhand to classmates we had not heard of for many years. All were two-page letters, some three, giving news of course mates, fraternity brothers, and so on. At this writing I have received five nice long letters which I am going to quote in full or in part. Returns from other precincts should give us plenty of news for the rest of the season. Ed Barrier, V, was not one of these silent men, but had informed me early in January that he and Isa were going to Florida, principally for her health, arthritis, and heart complications. Here's hoping for a quick and permanent recovery.

Lloyd Buell, III, writes as follows from Box 269, Camden, Ark. "Your good letter about yourself and a lot of Course III men is irresistible. A little biography in exchange is an unequal trade. Am down here in Arkansas as business manager for Leavell-Utah, a joint venture of contractors. We have built 60 concrete smokeless powder magazines, and before that was finished we took on a small fire station and three sizable special purpose buildings. All this on the naval ammunition depot at Shumaker a few miles from Camden. Came here after two years in a similar position for a different, but related, joint venture building a housing project, 800 units, at Fort Bliss. Before that I had loafed a year in Southern California. That takes me back to my 'retirement' five years ago. Retirement seems to be something like graduation. A circumstance at which many of us eventually arrive and which marks a more or less considerable change of environment, outlook and occupation. The Alma Mater from which I retired was Phelps Dodge Corporation for whom I had been office manager in Bisbee, Ariz., for many years. I'm one of the now forgotten depressions; Phelps Dodge had transferred me to their Auditing Department and I remained thereafter in accounting work instead of engineering, but still in Mining. Life has been kind on the personal side. The girl of my choice married me in 1914 and is with me here in Camden and is still my choice. We have two sons and a daughter who have given us seven grandchildren. We were until lately in the geographical center of their homes in Key West, Detroit, and Los Angeles. A shift from Key West to Japan has destroyed the equilibrium. We have no constricting plans or ambitions. This job will soon be finished and we will move around some, or at least move. We like Camden, and we like Arkansas, and we may run into other equally pleasant surprises. Given under my hand and seal this unfortunate day of self-revelation, in full knowledge that anything I have said may be used against me if I ever run for president."

Then Frank Payne, XIII, whose address is 1800 Cuyler Avenue, Chicago, Ill., has this to say: "I have been wondering about George Prentiss. I have always thought of George with the warmest regards, as we accomplished our thesis together; it wasn't much of a thesis, but it got us by. I don't know how George ever stooped so low as to run tests on an old gas engine up at the Winchester Water Works, but that was it. George carried me along, as usual. I am greatly indebted to him for his sound mechanical ability. I was only a lowly naval architect at the time. I am active enough in business, but I am not much of a Technology man. It seems since I lost my hearing and even with the aid of a hearing instrument, I muff so much stuff that I kind of stick close to the family. They have a great laugh on me every once in a while over the absurd things I say when I don't hear; nevertheless, I have the advantage sometimes when I can turn off the instrument. It could be worse, as you know, and as long as I am in fairly good health, I am happy; yes, indeed, very happy to be around." Frank is still head of the Crane Packing and tells me every pump I sell has a "John Crane" mechanical seal.

I don't know what I threatened Sam Seaver, XIII, when I wrote him, but either his conscience pricked him or his loyalty returned, for he writes thusly: "Guess I better get busy before you start any scandal about me. Sure am an obstinate old fellow but no more, after your nice letter telling me so many interesting things regarding my old classmates. Well, to start with, I was such a wanderer, jumping about so much, did not get married until 1921 and we have six children, three boys and three girls. The oldest, Sam, Jr., is 29 years old, and Dora, a young lady of 13, and the boss of the family. My oldest daughter was married a year ago last September and now has a son eight months old, which makes me a gran'daddy. As to my age, I go you one year better, as I was 72 last September and am glad to say in the best of health and very active. I was retired by the Canadian Pneumatic Tool Company, Std. (a subsidiary of the Chicago Pneumatic) on the 30th of last June, after 31 years with them as manager of their Mining Department. While I'm too young to quit, I am rather glad not to be exposed to the subzero weather of the north country and no more slopes to climb.

The 45 to 65 degrees subzero weather is a bit too much to take now. Yes, I've seen it 65 degrees below twice in my life up north. I am now back on the farm a property of about 100 acres I bought 15 years ago. It's about 20 miles from the centre of Toronto and within five miles of the new Metropolitan area, and I expect we will be taken in before long, as the suburban district is crowding in on us, and farming is being pushed further back into the country. We don't do any farming now, but rent the land to others. Our activities are mostly confined to small greenhouse, perennials, and home garden, and orchard. My oldest son is running the show, and I'm the hired man without pay.

I sure find plenty to do to keep me busy most of the day. That, of course, keeps me young. Yes, I remember the old Glee Club days. Every time I hear a banjo I always think of Louis Killion and Otis Fales'07, I think it was, who used to play a banjo duet one fingering the other chap's banjo. I also recall the time Babcock led us off with the old song *The Pope He Leads A Jolly Life*, when we were singing for some Catholic organization."

Howie Edmunds, VI, also broke silence as follows: "I too am recuperating from a bout at the hospital – eye operation for cataracts – last November, am trying to get accustomed to the new glasses and system of vision, but it is slow work. In 1952 I had a government job in Washington as a conservation officer in a Division of the N.P.A. Since then, January, 1953, I have been restricted by eye trouble, but am getting going again with a drafting instrument I invented called the Vitax which has made a promising start." Howie's address is 165 East 83rd Street, New York 28, N. Y.

The last I heard from Herbert S. Bailey, V, he was in the concentrated citrus fruit juices business, also a consulting food technologist. He apparently has since retired as this letter brings us up to date. "Having been at M.I.T. only two years, after getting my A.B. at Kansas State University, I did not get acquainted with many fellows outside of the V and X Courses. I do, however, often find items that interest me in your portion of the 'notes.' I've always looked with 'wonder, love and praise' on the work of Class Secretaries and now, nearly 50 years after graduating, am adding my mite of praise and appreciation to the many, well-earned commendations that I'm certain more loyal M.I.T. '05 men have written you. Just now I'm spending a few weeks with my son Edgar and his little family, wife, two girls, and my only namesake, Herbert. Edgar is a Ph.D. in geology of Stanford University and now chief of the Minerals Branch, Western Division of U.S.G.S. They have just moved into a fine new million and a half dollar building in Menlo Park near the Stanford Campus. Since Mrs. Bailey passed away two years ago, my daughter Lucy has moved into the old house in Ontario to make a home for 'Grandfather.' She has three children, the same as Edgar. Her husband is a high school teacher in Chaffey High School, which is just across beautiful Euclid Avenue from our home." Herb made my nomadic blood tingle with a description of a trip he had taken on a Greek "Liberty Freighter" through the Caribbean last winter, with dozens of stops at West Indies Islands and Central American points. Having had a couple of tastes of freighter life, I am headed for the Caribbean next winter, if all's well. Bailey gives us this much of his present status. "The little 'pot-shop,' at the back of our garden gets most of my time these days but I still have the Civil Service Commission, my S.S. Class, a bit of Scouting, and now and then take a spell of gardening."

Just called up Louis Killion, I, another fugitive from publicity. Louis is with the Engineering Division of the Massachusetts Board of Public Works. Louis said, "I love my work, I love life, I am very very happy." We lack addresses for these fellows: Allen H. Barrows, V, Bartolette A. Yoder, I, Ilias Asaad Murr, I, Albert Howell Smith, XIII, Harry N. Atwood, II, Leonard H. Foley, II, Elbert Fowler, VIII, and Leon M. Pease, II. Can anyone supply the address or suggest a method of ascertaining them? – FRED W. GOLDTHWAIT, *Secretary*, 274 Franklin Street, Boston 10, Mass.

• 1906 •

Your reporter attended the meeting of the Alumni Council held at the Faculty Club at M.I.T. on Monday, March 1, at the invitation of our Class Representative, Ned Rowe. The meeting was highlighted by brief talks by President Killian'26 and two of the Faculty, and like all alumni gatherings was interesting and inspirational. The Faculty Club is a valuable addition to the Institute's facilities, and it is planned to stage some '06 meetings there later.

In most instances we do not include address changes in this column but we have one which indicates that Malcolm Wight is now residing in Canaan, N.H. Malcolm formerly resided in Hartford, Conn., where he was an executive of the Hartford Fire Insurance Company until his retirement last year. With further reference to Hartford, the Secretary was in West Simsbury visiting his daughter on March 15, and while there tried to call Robert J. Ross who resides in West Hartford. The operator advised that the telephone was temporarily disconnected. Ross is retired from his position of engineer for the city of Hartford, so the assumption is he had probably gone south for a while. A more successful call was made from home to Shirley P. Newton, V, who now lives in Needham, Mass. Shirley spent 33 years of his professional career with the Sherwin-Williams Paint Company in Canada and for the last eight years was general superintendent of manufacturing at their Canadian headquarters in Montreal with factories in that city and also in Manitoba, Toronto, and Winnipeg. He retired in 1946 and moved to Brookfield, Mass. In 1951 he came to Needham. The Newtons have one daughter who graduated from Skidmore, is now married and living in Pittsburgh.

Supplementing the Udale story which was included in the March issue, our classmate advises that he retired on January 1 from his duties as patent attorney with the Holly Carburetor Company but adds that he will retain his office for a year. It might be added that he expects to be present at our 50th two years hence. – JAMES W. KIDDER, *Secretary*, 215 Crosby Street, Arlington 74, Mass. EDWARD B. ROWE, *Assistant Secretary*, 11 Cushing Road, Wellesley Hills 82, Mass.

• 1907 •

This is one of the rare months which occasionally happen when I have no news regarding the doings of our classmates to contribute to these notes, except for three address changes. Frederic Menner is now living at 759 Picacho Lane, Santa Barbara, Calif. – The home address of Thomas W. Roby, of whose retirement from active business I wrote in the April class notes, has a home address of 834 Westover Avenue, Norfolk, Va. – The correct mailing address for Sidney D. Wells is R. F. D. No. 1, Combined Locks, Wis. As of February 28, 1954, 81 '07 men, or 30 per cent of those on our class roll, had contributed $3,892.25 to the M.I.T. Alumni Fund."

Quoted from Canadian Progress, a service dealing with economic progress in Canada, in the March 6, 1954, issue, is the following paragraph relating to our classmate Clarence Howe: "Member of Commons this week asks Government to reveal names of members of its committee set up to eliminate so-called security risks from its ranks and from armed services. Question also asked when it was initiated, how many meetings it has held, if there is any appeal from its decisions and how many Government employees had been dismissed. 'The security panel acts anonymously,' Acting Prime Minister Howe declares. 'It does not pass out orders but recommendations to the deputy head of a department and, in my opinion, it is not in the public interest to say why people are discharged from the service, whether it is on security grounds or otherwise . . . I think it would be very difficult to get people to serve on the board if their names were to be published . . . We all abhor McCarthyism but so far we have been able to do a security job here without resorting to the kind of situation that arises in other countries." – BRYANT NICHOLS, *Secretary*, 23 Leland Road, Whitinsville, Mass. PHILIP B. WALKER, *Assistant Secretary*, 18 Summit Street, Whitinsville, Mass.

• 1909 •

We are in constant touch with Francis Loud, VI, and his Reunion Committee. At this time, March 13, he feels that it is still too early to send out the first notice, but it undoubtedly will be in the hands of the Class before this notice in the May Review is received. We can only continue to urge everyone to keep the date, Saturday, June 12, open. Many are planning to arrive at Chatham Bar Inn on Friday, and some may come even earlier in order to enjoy a few days vacation at this delightful resort. Continue to talk up the reunion to any other classmates whom you may meet. Also keep in mind that Monday, June 14, is alumni day. It's well worthwhile to have luncheon with classmates in the Du Pont Court and to meet them again at the Alumni Banquet.

Molly, XI, saw Bob, II, and Mrs. Keeney recently in Hartford and writes: "They have a delightful home in one of the old revolutionary houses at Farmington, and I hope I sold them both on the idea of coming to the reunion in June." Bob's son, Barnaby, we pointed out in an earlier number of The Review is dean at Brown University. Molly enclosed a clipping from the New York *Times*, February 14, in which it was stated that Barnaby had ordered a number of "pocketbooks" and objectionable magazines removed from sale at the Faunce House, Brown University Student Union Building. We have learned that Barnaby is making a name for himself as dean in this well-known university.

The Charles T. Main Textile Research Laboratory at the Institute was dedicated

on March 6 as a "memorial to the outstanding textile engineer who had been an M.I.T. Alumnus, instructor, and Corporation member." Representing the engineering firm of Charles T. Main, Inc., was his grandson, Charles T. Main, II, son of Charles R. Main, our late classmate and Secretary. Incidentally, young Charlie has for some time been a selectman in the town of Winchester and like his father and grandfather is one of the town's leading citizens. – CHESTER L. DAWES, *Secretary,* Pierce Hall, Harvard University, Cambridge 38, Mass. *Assistant Secretaries:* HARVEY S. PARDEE, 549 West Washington Street, Chicago 6, Ill.; MAURICE R. SCHARFF, 366 Madison Avenue, New York, N. Y.; GEORGE E. WALLIS, Wenham, Mass.

• 1911 •

At this mid-March writing, I am just about to leave Gardner after 9½-plus years as secretary-manager of the Chamber, to assume the position of Executive Secretary of the Framingham Chamber of Commerce. This return to my native town, whence I entered Tech in the fall of 1907, is at once a satisfaction and a challenge. Sara and I have secured an apartment at 28 Kendall Street, Framingham, where we will be at home after April 1. We both received a royal welcome to Framingham Monday evening, on March 8, when we were guests at the 59th Annual Banquet of the Framingham Chamber and very helpful in assisting my wife to locate an apartment were Roy MacPherson, II, and his popular wife, Ina.

Maybe you saw the fine tribute to Dick Gould, XI, in the February 18 issue of *Engineering News-Record,* which opened with: "Richard H. Gould – quiet, unassuming inventor of sewage treatment processes credited with having saved millions of dollars in construction and operation costs – has retired as director of sewage disposal, New York City of Public Works Department of Public Works. He will join the Chicago consulting firm of Greeley and Hansen, representing them in New York." Continuing, the story tells of Dick's design of 11 modern treatment plants, his pioneering in the development of power from sewage gas and his improvements on the activated sludge process – step aeration and high rate activated sludge – all of which have meant substantial plat-cost savings, while work recently under study in Dick's division points to still further refinements of aeration practice and of sludge concentration and digestion.

"Another outstanding engineer is leaving city service because of inadequate salary," was the comment of Public Works Commissioner Frederick H. Zurmuhlen, getting in a plug for more 'career incentive' in city service, as he announced Dick's retirement. "Gould will be 65 this year," the article continues. "Born in Newton, Mass., in 1889, he graduated from M.I.T. in 1911 with an S.B. in Sanitary Engineering. He then went to Germany's Emscher River Valley for a year and a half of education and experience in sewage disposal work under the famed Karl Imhoff. Back in the U.S.A., he served employers including Robert J. Harding, Hazen and Whipple and James H. Fuertes. During World War I he served in the U.S. Army – seven months as a pursuit pilot in France. Since 1928, when he went to work as chief engineer on design of New York's Ward Island sewage treatment works, he has moved through a series of titles and changes in city public works organization. But since 1930 he has been responsible for design, construction and maintenance of all sewage treatment plants and interceptor sewers in the city." In his own announcement card, Dick concluded with: "Mr. Gould will continue in residence at 234 Hollywood Avenue, Douglaston, N. Y. Patents and related matters remain of personal interest only." May you enjoy and thrive in your new consulting practice, Dick!

Mailed February 16th from Singapore, Malaya, was a nice letter from L. G. Fitzherbert, I, who with his wife, Marj, is on a round-the-world trip. Following some very interesting visits in Tokyo, Kyoto, and Kobe, Japan, they sailed to Keelung, Formosa (Free China, then to Hong Kong and finally to Manila. From Manila they sailed to Batangas, a small town at the lower end of the island of Luzon, where they saw quite a bit of construction by the Caltex Company in the erection of an oil refinery. "As guests of Caltex," Fitz wrote, "we visited the plant and also were shown the country around, including a visit to the town where 'market day' was in full swing. We met Seven V. Amagna'51, who is one of the Caltex engineers. He visited the market with us and was very helpful. Understand that he married a Boston girl and they have one child. Next stop is Singapore, where I'll mail this letter. Wonderful time – weather is tropical, about 95 degrees. Our best to 1911 men, and to you and Sara."

Joe French, IV, writes from Detroit, Mich., that he and Yolanda, returned in late February after a winter vacation in California. "Decided this year to evade some of the cold weather," Joe wrote, "so we packed up in January and left for California's warmer climate. Have had a wonderful time and will do the same each year now, if possible. Yolanda has often been to California when I was too busy to accompany her, so she has lots of friends out there and we were royally entertained in an average temperature of 80 to 85 (some change from Detroit's 30 degree mean). We have just been blessed with our 13th grandchild. Five of our children are married and all very happy. Our remaining daughter, Yolanda, is still in college and happy, too. Yolanda (mother) and I are looking forward to 1956 with hopes that we will be with you all again. In 1955 we plan to be in New York for the Knights Templar conclave, where I'll march with Detroit K.T. #1 Drill Corps if I am still able. This is the first time since our trip to Europe in 1932 that we've had more than two weeks' vacation."

Milt Hayman, IV, whose wife, Gertrude's death we sadly reported in an earlier issue of class notes, writes from 38 Roberts Lane, West Hartford, Conn.: "There must be some resilience left in the old man, for my son and I are planning another fishing trip into the wildest part of northwestern Maine for this coming spring. By the way, Robert operates 'The Jolly Tar,' the most superlative gift shop ever – one I am sure classmates and their wives would find interesting if they are ever in East Orange, N. J. I expect to retire in June as building maintenance engineer of Pratt and Whitney Aircraft Company and go back into architecture in a small way. I have been here in this dynamic organization since just before Pearl Harbor – a very busy 12½ years, filled with interesting and unusual problems. I shall miss the thousands of friendly contacts but will welcome the absence of hustle and bustle and a return to my work which used to be both vocation and avocation."

The Kennedy Galleries on Fifth Avenue in New York City held a memorial exhibit for the late John Taylor Arms, IV. Writing of them, Professor Loring Holmes Dodd, art critic of the *Worcester Telegram,* wrote, in part: "I have recently been poring over the illustrations in two precious volumes in my library that Dorothy Noyse Arms wrote and for which her husband, the late John Taylor Arms, did the illustrations, 'The Churches of France,' and 'The Hill Towns and Cities of Northern Italy.'

"In 'The Hill Towns and Cities of Northern Italy' one reads of the strange adventures that beset the Arms and their fellow-travelers, Katherine and Arthur Heintzelman. In Caradono they were suspected of being spies, mapping the terrain – it was the heyday of Mussolini and fascism – and escaped with men clinging to their car in an effort to detain them! During the heyday of his career, Arms produced etchings at the rate of nearly 15 a year – which means unremitting attention to an exacting art. Nor could there be haste in his case, for never was there an artist so passionately devoted to the recording of the infinitesimal." A wonderful tribute to a wonderful classmate!

Harold Smith, II, sent me a clipping from the Miami, Fla., *Daily News* of February 24, with a snap of General George Kenney, II, who was there in the interests of the National Arthritis and Rheumatism Foundation, of which he is president, conferring with officials of Jackson Memorial Hospital and the University of Miami in regard to establishing a clinic on arthritis and rheumatism adjacent to Jackson in connection with the medical school. – At almost the same time, I had a letter from Hal Robinson, I, congratulating me on my new appointment. Hal is living in Holden, Mass., a suburb of Worcester, and wrote: "On November 30th I was taken with a coronary thrombosis and after four weeks in the hospital and six weeks at home I was allowed to go to work for a half-day and am still on that schedule, but gradually improving. George Kenney is to address the M.O.W.W.'s on April 13, and I have written him asking him to spend the night with me. Warren Simonds, II, and his wife, Marjorie, called on us in mid-February. They are planning a West Indies trip in March."

Sam Cornell, XIII, came through with a fine letter in early March, writing: "Sorry I could not get to the 1911 luncheon for you in New York in January. I retired on October 1, 1953, so it would appear that I would have plenty of time but the company, American Chicle Company,

wanted me to come back to work as a consultant and as a result I am working three days a week. Best regards to you and the family. I will get to the luncheon next year." In a letter of congratulations in early March, Minot Dennett, II, said: "Vera and I have just returned from five weeks in Florida and had a most enjoyable trip, returning to Detroit in the midst of the worst snow storm here in several years. It was my first trip to that part of the country and both of us enjoyed it. Our best to you and Sara and all the inquiring friends and classmates."

Looks like that proposed "1911 Art Exhibit" at our class luncheon in New York next January will be quite a show, for Phil Caldwell, I, writes: "At next year's 'Dennie Luncheon' we will have at least four one-man painting exhibits instead of three (President Don Stevens, Joe Harrington, and Bill Orchard), as I have started the hobby!" Better plan to be there, classmates.

We now have the Alumni Fund figures through February and you find 1911 in a top tie with 1907 and 1909 for best percentage of Class contributing – all at 30 per cent. There is still time, if you have procrastinated – any time before June 1 counts on the 1953–1954 class totals. And so to close up for this issue, we find three more classmates retiring from active work: Oscar J. Gilcreest, VI, 208 Vassar Avenue, Swarthmore, Pa. (formerly from Philadelphia); Colonel Laurence Watts, I, 850 Ellis Avenue, N.E., Orangeburg, S.C. (formerly New York City); and John L. Wilds, II, 205 Woodland Drive, Darlington, S.C. (formerly Chicago). Four other address changes also at hand: William E. Fortune, 10 Havey Street, Roslindale 31, Mass.; Gardner C. George, I, 1567 Mt. Eagle Place, Alexandria, Va.; Louis Grandgent, IV (back from Santiago, Chile, S.A.), 7 Bradford Place, Huntington Station, N.Y.; and Mrs. Mayo Tolman, VII, 809 Country Way, North Scituate, Mass. Try to be at Alumni Day at M.I.T. on Monday, June 14. – ORVILLE B. DENISON, *Secretary*, Framingham Chamber of Commerce, 109 Concord Street, Framingham, Mass. JOHN A. HERLIHY, *Assistant Secretary*, 588 Riverside Avenue, Medford 55, Mass.

• 1912 •

Word has just reached me of the sudden death of Mrs. Harris E. Dexter while in Kansas City on a trip with her husband. Harris has a son in the Air Force and a daughter who is at home with him. Ray Wilson writes that he just heard from Billy Reeves whose wife has just recovered from an operation. He also reports that Al Thompson's wife died suddenly last September.

Harold Griffin recently dropped in on Ray and the report is that he has changed very little in the last 15 years. Since the death of his wife, he has been living alone in Norwalk, Conn., and is doing consulting and contracting work in the building field commuting daily to New York. Ray was good enough to enclose a summary of the European trip which he and Helen enjoyed last summer. Here it is: "European Sojourn – The *Flying Dutchman*, a superconstellation, left Idlewild with the Wilsons aboard. After stops at Gander, Shannon and Amsterdam we arrived at Frankfurt, rushed through customs and were on our way to Heidelberg to begin a three-week's tour of Germany, Austria, Italy, Switzerland, and Holland. In Heidelberg we hired Hans and his taxi and visited the old section of the city, Heidelberg Castle and the university. Next morning we took a train through the beautiful agricultural ditsrict to Wurzburg and on to the little town of Steinach.

"We hoped to attend the annual Shepherds' Festival in Rothenburg 12 miles away. I brushed up my German and soon had the local innkeeper and his tiny Volkswagen on the road. Completely surrounded by our luggage we bounced along without incident. Rothenburg was in a holiday mood. The festival was delightful with dancing, singing and a special parade. Most of the townspeople participated, many in traditional costumes. Our next two days were spent visiting the old walled towns along the "Romantic Way" from the River Main to the Alps. After a trip from Fussen (where I inspected a fire house), we went through Oberammergau and Garmisch Partenkirche, the skiers' paradise.

"Five days in Austria included Innsbruck, Salzburg, the lake country and several more picturesque towns in the Tyrol. We visited Venice, Siena and Naples, then Sorrento. Here our hotel rooms had a balcony overlooking the Bay of Naples with Vesuvius in the distance. After a day on Capri we journeyed to Pompeii over excellent roads and along beautiful Amalfi Drive to Rome. We flew from Rome to Zurich. Our journey took us by lake boat to Schaffhausen, the Rhine Falls and Lucerne. Lucerne is as beautiful as it is reported. After a day in Berne and a boat trip to Interlaken we went by train, funicular and elevator to the Jungfrau.

After two days in Zurich we flew to Amsterdam, a city which we place high on our list for quaintness. The people here are most gracious. The number of bicycles was appalling. We visited the little fishing towns of Volendam and Isle of Marken. Both will soon be included in the gigantic project to reclaim the Zuyder Zee. But time had now run out and we emplaned to New York." – FREDERICK J. SHEPARD, JR., *Secretary*, 31 Chestnut Street, Boston, Mass. LESTER M. WHITE, *Assistant Secretary*, 4520 Lewiston Road, Niagara Falls, N. Y.

• 1913 •

The "Ides of March" are here. We shall even give you news from France, California, Indiana, Florida, New Hampshire, Connecticut, Texas, Ohio, Virginia, New Jersey, Illinois, Maryland, Wisconsin, New York, and Massachusetts, now or later.

A pleasant voice out of the wilderness, my old pal, John B. Welch, Vice-president of the Standard Dry Kiln Company, Indianapolis, Ind., and we quote: "Your letter brought back happy memories of the time when we were on the Junior Prom Committee together. The picture of me of today as compared with then would show me a little bit larger around the waist, and I have dyed my hair grey just to keep up with everyone else about my age. I see that you are still in Canton, but I do hope that you have at times been able to get west of the Hudson because really this middle west is a wonderful place. I have been here since 1929, with my wife, Frances, who came from Medford, and two daughters who are now both married – Joan having three boys and one daughter living near us here in Indianapolis, and our other daughter, Betty, having one son a year old and living in Cincinnati, so we are all pretty close together which makes it fine for all. I have been in the dry kiln business since 1923 and like it very much, and my business carries me sometimes into New England, and every summer we spend at Centerville at Cape Cod. It has always been a regret on my part that I wasn't able to get out to some of the class reunions because they always come too early in June when I am trying to finish up and get away for the summer. Possibly this June I will travel East and if so, I want to look you up and maybe we can have a little reunion.

We have a Tech club here which while not large is very active and we have many good meetings, the last being a Dinner Dance at the Athletic Club. Strange to say, most of the boys in that Club are from New England." Johnny, it was wonderful hearing from you and I know that all of your old classmates will enjoy our recording.

Our stalwart center, 1913 football team, Lester Gustin of Winchester, Mass., is not only the president of the Massachusetts Apartment Owners Association, but now is sojourning in Florida, while writing the genealogy of the Gustin family, to be published this summer. Gus writes: "With reference to your letter, or rather circular, which reached me here in Florida some time ago and then got mislaid, I have now practically finished my genealogy of the family, a spare time operation, and will see that you get a copy when it is finished so that you will have the low-down on the whole family including myself. I really have been so busy down here I haven't had much time to write, although, if you should ask me what I have been doing, it would be hard for me to tell you. With reference to class dues, I haven't Joe's address here, so am sending you the check so that you can forward it to him. Am making the check for $10.00 to make up for some of the years in the past that I didn't pay.

"Both my wife and I send you our best and I hope that we will see you both again in the not too distant future." Thanks, Gus, you always did set a good example.

Marion Rice Hart's brother acknowledges our quest for news: "Mrs. Hart is now in Siam (Thailand) after crossing the Atlantic in her single engine plane and covering many thousands of miles across Europe, Africa, and Asia. She shall return about May 1." We shall expect to hear from you, Marion, some time in May giving an intimate description of your travels. Herbert G. Shaw, 210 Church Street, West Haven, Conn., states briefly: "See you at the next reunion." That's the spirit. I'll be there.

Charles Walton, Business Administrator, Equitable Building, Hollywood, Calif., is one of our silent contributors, along with the following: Leon Katzenstein, 823 Clara Avenue, St. Louis, Mo.;

David Stern, 99 Shady Hill Road, Newton Highlands, Mass.; Max J. Shafran, 34 Elm Hill Park, Roxbury 21, Mass.; William G. Horsch, 224 Briar Hill Lane, Woodbury, N.J.; Professor Albion Butts, Lehigh University, Department of Metallurgy, Bethlehem, Pa.; Louis E. Wright, 3700 Prospect Avenue, Cleveland, Ohio; Kenneth Franzheim, 502 Lovett Boulevard, Houston 8, Texas, who is helping to build up the Southwest relates: "Thank you for the breezy 'dun' with reference to class dues. I am delighted to enclose, herewith, a check for a dollar to take care of them. If I had any news that I thought would particularly interest the Class, I would have forwarded it long ago. We have just bought a new office building that we are occupying with a staff of 30 or 35, and are busy at the moment with new bank and office buildings. For some reason, there seems to be a steady flow of them. Under the circumstances it has not been possible for me to get East for any of the festivities, although I hope to be in Boston later in the year when the American Institute of Architects have their annual convention. In the meantime the little diversion I am able to get, takes place in Mexico City, where we own a small home 'Casa Pancho.' If any of the old gang head for Mexico, ask them, please, to let me know, as I can send them plenty of information on the subject, and perhaps arrange a reunion there. I look forward regularly to reading the class notes, and I hope they keep coming. Please give everyone my warmest regards." Ken, you were ever refreshing. When you arrive in Boston later, please call me either at Canton, or the Boston Lying-in Hospital. We are always indebted to R. C. Thompson, 24 Westfield Road, Newton., for assistance both as to news and as a Class Officer, and he and his charming wife have been traveling extensively; he narrates: "The 1913 notes in the February number of The Review are fine. Good work. The literary style deserves a high mark. As class representative on the Alumni Council, I attend the meetings regularly every month. We now meet at the Faculty Club on Memorial Drive. Attendance runs between 130 and 150, and the programs are much worth while.

At the midwinter gathering of the Alumni Association at the Walker Memorial, Thursday February 4, six 1913 men were on hand, namely: Philip V. Burt, Edward H. Cameron, Gordon G. Howie, Burton L. Cushing, and your Secretary. It was a fine meeting but more 1913 men should be there. Perhaps some have hibernated since the 40th last June. Mrs. Thompson and I took an extensive trip last summer. Leaving the last of June by train to Toronto, then via a Great Lakes steamer to Fort William, Ontario, at the Western end of Lake Superior; Canadian Pacific to Vancouver, stopping at Winnipeg, Banff Springs and Lake Louise. From Vancouver, by boat via the Island Passage to Skagway, Alaska, touching at Prince Rupert, B.C., Ketchican, Wrangell and Juneau. From Skagway we took the narrow gauge railroad (Boston, Revere Beach and Lynn style) to Carcross, Yukon territory. From there a stern paddlewheel old time boat down a long finger lake by day and back to Carcross by night. Back again to Skagway and boat to Vancouver. Home by way of Victoria, Seattle, Portland, Oregon, and Yellowstone Park by bus and train. Gone a bit over a month. Mr. and Mrs. Lincoln Mayo, 1908, were on the trip with us. Trip was over 11,000 miles and enjoyable all the way. Here's my bit for class notes. I'll try to help for future issues." Our appreciation, Charles, I know all of our readers will enjoy your news as I did.

Colonel Edwin C. Gere, 1842 Viking Way, La Jolla, Calif., is still retired. What does he mean? Maybe, join the Tech crew again, anyway you read this note; "Since you didn't give me Joe's address, I have to write a note or two to you. I'm still retired after 30 years with the Army and still living in LaJolla where we have no winters and not too hot summers. I have a married daughter and a married son. Between them I have three granddaughters. One son is in S. D. State College this year and U.C.L.A. will take him back if he works instead of plays as he did last year. Hope to get to Boston some day to show my wife around. Best wishes to all." Ed, give us a call when you reach Boston and we shall try to arrange a welcoming group. Had a short note from Fred Murdock, still basking in the balmy breezes of Orlando. After writing monthly notes for the Class year after year, he enlightens us with the following: "I plan to retire on May 31 of this year, and go to pasture, at the age of 66 years. I still haven't the vaguest idea of what going to pasture means or involves, but I'll find out pretty soon and cross the bridges when I come to them." Let us help you, Fred, when you are ready to cross those bridges. Andrew Vogel states briefly: "Thanks for your note. I am retired and busy as ever. Please change my mailing address to Andrew Vogel, 1821 Lenox Road, Schenectady 8, N. Y. Also enclose check for dues; otherwise, all is quiet along the Mohawk." Good Luck, Andy, never give up. Samuel W. Selfridge, 225 Bush Street, Room 771, San Francisco 20, Calif., is also a man of few words as he comments: "Same old groove with me. Keep trying, Phil, never can tell when you'll hit the jack pot." All right, Sam. I hope I live long enough to realize that luck. We are looking forward to Alumni Day in June. Start making your plans now. So, my children, be patient until next month for further surprises. — FREDERICK D. MURDOCK, *Secretary,* Murdock Webbing Company, Box 788, Pawtucket, R. I., GEORGE P. CAPEN, *Assistant Secretary,* 623 Chapman Street, Canton, Mass.

• 1914 •

It is already May. One month from now it will be June — the time of our 40th reunion at Pine Orchard, near New Haven, Conn. Do you realize that before another five-year reunion comes around most of the Class will have retired from active business? Let us all then make this a gala occasion. If you have not sent in your questionnaire, just drop a line to Charlie Fiske or your Secretary telling us that you will be there.

One regular attendant will be missing because he must be in Europe at reunion time. Walter Keith regrets that his plans require him to be in the Near East at that time. Walt, who is the owner of the Hygienic Dental Manufacturing Company of Akron, Ohio, will fly to Paris; then the trip will include Rome, Cairo, Jerusalem, Bierut, Istanbul, Athens, Switzerland, and Germany. Walt says that the trip is largely business. He is able to take the trip because Walt, Jr., who received his M.S. degree from M.I.T. in 1942, has joined the company and is now vice-president. Incidentally, Walt, Jr., has three children, one of whom is Walt, III. Walt says that he expects to build a new plant this coming year on a five-acre plot he has just acquired.

The list of retired '14 men increases every month. Earl N. Frank, after 12 years with the Washburn Crosby Company and 23 years with International Milling Company, where he was engaged in research in cereal chemistry, has joined the retired group. Frank reports that each of his three children is married and each has two children.

Tom Chase, who has been assistant treasurer of John Hancock Insurance Company, retired on April 30. Tom expects to be with us at the reunion to tell how it feels to be a gentleman of leisure. Edward C. Wente, Research Consultant for Bell Telephone Laboratories, also has joined the retired group. Wente is best known for his work in the field of acoustics. His work on the condenser microphone won for him the Franklin Institute Wetherill medal. For his work which was the basis of the Western Electric sound picture system he was awarded the first Progress Medal of the Society of Motion Picture Engineers. His other awards include the Gold Plaque of the Academy of Motion Picture Arts and Sciences and the Modern Pioneer Award of the National Association of Manufacturers.

A. L. Pitz brings his class card-file up to date by writing that he has one son and three daughters, none of whom are quite old enough to be married yet. Chet Ober is president of the Eastern t.f. Club. Your Secretary fell for that one, and Chet promptly replied that t.f. among industrial advertising men means 'til forbidden. That is, a good advertising man writes his contract for a year and t.f. The association accepts only representatives of papers with audited circulation. The Eastern Club is one of three covering the country. Chet, by the way of diversion, writes that his daughter Louise was married on February 13, but since he lives in Southern Connecticut, he will be able to afford transportation to our reunion.

Harold Danforth, who is employed by the National Scientific Laboratories of Washington, D. C., is currently stationed at Griffiss Air Force Base at Rome, N. Y. He is uncertain as to whether he will be able to obtain leave so as to attend the reunion. Fred Barns is president of the Pacific Coast Greenhouse Manufacturing Company at Redwood City, Calif., but feels that a trip across the country may be a bit more than he can take to be with us for our 40th. Perhaps we can arrange for Boggs Morrison to stop by and urge him to come. Boggs is spending about four months on the coast, principally in the San Francisco area, for A. D. Little Company. He writes that he has three grandsons, all hoping to enter the Institute.

Governor Val Peterson has named

Homer Calver a member of the National Advisory Committee on Emergency Feeding. This is part of the Civil Defense Administration and is concerned with mass feeding under emergency conditions. The paper cup and container industry, of which Homer is secretary of the Public Health Committee, has without cost to the government stockpiled 25 million paper cups at strategic points around the country to be available in case of a national disaster.

Marriages are rare events to be reported in these notes, but we have one this month, and none other than Donald Douglas. Don was married on March 6 to his executive assistant, Mrs. Marguerite Tucker. It was his second marriage.

And, as they all too frequently do, these notes must end on a sad note. Israel Paris, who was on an extended European trip, died of a heart attack in February at Majorca, Spain. Further details are currently not available. Paris prepared for the Institute at Mechanics Arts High School in Boston and was active in numerous organizations while at Technology. He was engaged in patent work in Washington, where he headed his own firm. — H. B. RICHMOND, *Secretary*, 275 Massachusetts Avenue, Cambridge 39, Mass.; ROSS H. DICKSON, *Assistant Secretary*, 126 Morristown Road, Elizabeth, N. J.

• 1916 •

It is only a month now before our annual reunion at the Treadway Inn in North Falmouth, Mass. Better start getting things in shape so that you can be on hand for the big week end, June 11, 12 and 13. For those of you who can, you might also include in your plans the Alumni Day activities at M.I.T. and the Hotel Statler during the day and evening on Monday, June 14. It will be nice to get away from your usual routine for a week end and to mix a little conversation, relaxation, cards, golf, or what-have-you, with some of your old pals.

Here are a few changes of address for those of you who are keeping your records up to date: Duke Wellington, 86 Stratford Avenue, White Plains, N. Y.; Howard Smith, Pumpkin Hill Road, Mystic, Conn.; Henry Morse, 126 Independence Drive, Brookline, Mass.; Professor Murray P. Horwood, 8 Craigie Street, Cambridge, Mass. (Back from Rangoon, Burma.)

We received this nice letter from Al (Major General) Lieber who is located in Washington, D. C.: "Each year in which I make detailed plans to attend our class reunion on the Cape, something has come up with sudden orders or flaps which prevented my making the trip. This year I figured on outguessing the Pentagon by making no plans out loud, just aiming to drop out quietly and be at the reunion. Right now I am skeptical of that system for I have received orders to report to Fort Leonard Wood, Mo., in April to assume command of that post. I have not yet given up on my reunion plans since my son graduates from West Point on the 8th of June and gets married there on the 10th. Subject to the military and family situation at that time, I have a suspicion that I shall stretch the trip East so as to get to the Cape for the 12th and 13th . . . Our daughter telephoned from William and Mary to say that she aimed at marrying about two months after graduation in June. The net result so far is a couple of bewildered Liebers. I had a note from Don Webster who expects to be in Washington this week, after a visit on the Gulf Coast and in Florida. We plan to have luncheon while he is here, and I shall again lay the private plan for the reunion." Thanks very much, Al. We'll be looking forward to seeing you in June.

It was nice to get this word from George Petit: "Thank you for your letter of February 18, advising of the Treadway Inn 105th Honeymoon of 1916 on June 11, 12 and 13. Count me in." You can bet we will, George. We also got word from Jimmie Evans that he was going to be on hand. This is encouraging because at the time of writing this column (in March) we haven't sent out a class reunion announcement. Maybe the idea of annual reunions is habit-forming — a good habit, yes indeed! Annual reunions give the chance to maintain close friendships without losing touch in an interim of years between reunions.

Your Assistant Secretary on one of his recent trips to Albuquerque, N. M., lectured at the University of New Mexico on the subject, "Some Experiences in Sampling," at the first session of the newly organized New Mexico Section of the American Society of Quality Control. While he was there, he took a few minutes to call long-distance and talk with Lewis Carman in Los Angeles and is pleased to report that Lewis is fine.

Your Secretary also comes in for his share of the headlines this month, first on his appointment to be chairman of the Dimension Stone and Slate Committee of the American Institute of Mining and Metallurgical Engineers, and secondly and much more important on becoming a grandfather for the sixth time when his daughter, Mrs. Peter B. Robinson of Birmingham, Mich., gave birth to her fourth child, a boy, on March 9.

Spring fever set in a little earlier than usual this year with the result that our column this month (prepared in March) is much shorter than usual. We look for a quick cure and many more letters for our future columns. — RALPH A. FLETCHER, *Secretary*, P. O. Box 71, West Chelmsford, Mass. HAROLD F. DODGE, *Assistant Secretary*, Bell Telephone Laboratory, Inc., 463 West Street, New York, N. Y.

• 1919 •

Our 35-year Reunion Committee has stirred up considerable interest in the Class for our get-together at Wentworth-by-the-Sea, June 11, 12 and 13. The boys in the Boston area have been setting the pace and are already predicting over 110 will be present at this time. Some of those active in the Boston area are Bill Banks, George McCreery, Jim Holt, George Michelson, Art Blake, Wirt Kimball, Paul Sheeline, Ark Richards and others. We understand from good authority that a clambake is scheduled for Friday night, the 11th, which will start the ball rolling and get everybody reacquainted and certainly give the wives a chance to meet everybody on an informal basis. They talk about some golf on Saturday, also for those who are interested in tennis and perhaps other organized sports. Lunch on Saturday will be informal, and Saturday dinner in the evening will be the main event, with President Killian of M.I.T. as the principal speaker. The New York Section is getting started to get their groups organized, and George McCarten has been working hard out west of the Alleghenies. Cards went out in March with replies to our Chairman, Will Langille, in order to get a clear and accurate idea of the attendance to be expected, hotel reservations to be made, and trains, planes and buses to be met. It all sounds to me as though the Class of 1919 is going to have one of the finest get-togethers in its history in our 35th at Wentworth-by-the-Sea.

Frank Adams hopes to fly up from Kentucky for the reunion. For the past five years he has been a mechanical engineer for T. V. A. on the construction of their new 1,500,000 kw capacity power plant near Paducah.

In August of this year Roy Mackay will complete his 32nd year with Bethlehem Steel, where for the past 17 years he has been assistant superintendent of the Rod and Wire Mills. He would be very pleased to see any of the M.I.T. '19 men and show them the plant at Sparrows Point, Md., the second largest steel plant in the world and, Roy says, the best. He sends regards to all. John Putnam is working in the M.I.T. Flight Facility at Bedford airport, and is also a photo observer in M.I.T. B-29. Clarence Nutting writes from Salem, N. H.: "I thought I was going to get dumped out of the textile business when I got laid off, a victim of the closing and liquidation of the old Arlington Mills in Lawrence, Mass., January, 1952. But I am pleased to say that I am now in the Research and Development Laboratories, Processing Research Department, of Pacific Mills, and very happy, with a good company and a fine group of workers, still in worsted textiles, spiced up a bit with some of the new synthetics. More spice in life is supplied by a total of three grandchildren. I am still living in the same home I have occupied for the last 33 years. Living so near, I hope to attend the reunion at Portsmouth in June."

An article by Earl Stevenson, President, Arthur D. Little, Inc., on the increase of knowledge of the universe gained during 1953 through research, appeared in the Boston Sunday *Globe* of January 24, in which he named as the six outstanding events in scientific research during the year: the successful chemical synthesis of sucrose; powered flight at twice the speed of sound; the determination by astronomers that our universe is twice the size and age previously thought; the "discovery," isolation and growth in quantity of Chlorella; magnetic-tape recording of moving pictures or television; and the taking of the first steps toward devising a unified theory to describe, in one set of equations, the basic physical phenomena of gravitation and electromagnetics. Earl has been elected a director of John Hancock Mutual Life Insurance Company.

George McCarten and his wife recently had a good holiday at the Isle of Pines, off the south coast of Cuba. See you at the Reunion! — EUGENE R. SMOLEY, *Secretary*, The Lummus Company, 385 Madison Avenue, New York 17, N. Y.

• 1920 •

I received a very welcome letter from Doug Higgins (Colonel Austin D. Higgins), now residing at 2939 Grinstead Drive, Louisville, Ky., where he says he has finally settled down, at least for a little while. Doug, as many of you know, has been one of our most active globe girdlers. He was with the U. S. Army on active, or reserve, duty for 35 years, for the last 10 years on active duty as a colonel in the Transportation Corps, during which he had many interesting commands, including the major ports of Oran, Algeria, Glasgow, Nagoya, Japan, the New Orleans Port of Embarkation, and the Port of Kobe, Japan. His work took him to some 43 foreign lands, as far north as Greenland, south to Chile, east to Bari, Italy, and west to the Philippines. Now settled down in Louisville he plans to take more time for his numerous hobbies which include oil painting, photography, writing, woodworking and occasional speech-making before various organizations on various subjects.

It is a pleasure to report the advancement of Bob Patterson to vice-president of the John Hancock Mutual Life Insurance Company. Bob has been with this company since 1934. In 1945 he was made manager of the company's Bond Department and in 1948 was elected to the office of second vice-president.

Ray Reese is now in Toledo, Ohio. Francis Mead has left Rockville Center, N. Y., and is in Ft. Lauderdale, Fla., address 1738 S.W. 13th Court. Clyde Norton is with the Department of Justice and may be located at Room 1629 in the Department of Justice Building, Washington 25, D.C. — HAROLD BUGBEE, *Secretary*, 7 Dartmouth Street, Winchester, Mass.

• 1921 •

Robert E. Waterman, Vice-president of the Schering Corporation, makers of endocrine and pharmaceutical preparations of Bloomfield, N.J., has written us correcting an error in the recent listing of one of the members of the 1921 Junior League. Bob says: "As usual when I receive The Technology Review, I pick up the March, 1954, issue and turn to the '21 class notes. I was somewhat dismayed to read an account of my doings which, I am afraid, have been in your notes at least once if not twice in the last three or four years. That was all right until I got to the last line where I read that I have two daughters rather than a son and a daughter. I can assure you that if I told my son James that he was listed as a girl he would come down to Glen Ridge and burn your house down. For his sake if not for mine, I would appreciate a correction." We sincerely regret the error and hasten to amend the record to include the name of James Waterman as a prospective member of the Class of 1965. We will look forward to further news from Bob to bring his record up to date.

Herbert A. Kaufmann of New Rochelle, N.Y., phoned to say that his son, Peter J., is a graduate student at Technology, working for his master's degree in Course XV as well as a research assistant in Industrial Management. Peter was graduated from Johns Hopkins last June with a bachelor's degree in industrial engineering and is a member of Sigma Xi. This changes the figures on our second generation club at the Institute, published earlier this year, to give a new total of 18 sons of members of the Class now at Technology, including seven members of the Graduate School, four seniors in undergraduate courses, two juniors, two sophomores and three freshmen. The all-time total since 1942 is now 54 sons and two nephews. Herb is vice-president of the Treitel Gratz Company, New York fabricators of precision sheet metal work. The Kaufmann's daughter, Jane, a graduate of Oberlin in 1951, is married and living in Mt. Vernon, N.Y.

Add to the list of members of the Class among the official M.I.T. family the name of Melvin R. Jenney, patent lawyer and member of the Boston firm of Kenway, Jenney, Witter and Hildreth. Mel is a member of the staff of the Division of Industrial Cooperation at the Institute. His son, Richard, is a graduate student in Course VI and also a research assistant in the Electrical Engineering Department. Other sons of members of the Class who are graduate students and on the Technology staff besides Richard and Peter Kaufmann are Quintus Anderson, son of Paul Anderson, who is a research assistant in Industrial Management, and Robert Kendall, son of Jackson W. Kendall, a research assistant in Chemical Engineering.

Thomas B. Card of Fairhaven, Mass., recently addressed the New Bedford Rotary Club on his experiences in the Near East and showed slides of engineering work in Arabia. Following four years of service in Forld War II as an army colonel, Tim traveled extensively in South America and the Near East, spending a year in Arabia as head engineer for International Bechtel, Inc. He reports temperatures as high as 145 degrees in the desert interior and as much as 100 to 120 degrees along the Red Sea.

Daniel P. Barnard, 4th, Research Coordinator of the Standard Oil Company of Indiana, recent President of the Society of Automotive Engineers and life member of the Alumni Association, reports a new address at the Sheraton Park Hotel but gives no indication of his activities in Washington, D.C. Malcolm P. Canterbury, Superintendent of Construction, Veterans Administration, according to our latest records, has a new home address at 1418 Girard Street, N.W., Washington 9, D.C. Ormond W. Clark, Assistant Manager of the Dye Application Laboratory, Calco Chemical Division of the American Cyanamid Company, says he has a new home on Mountain Road, Whitehouse Station, N.J., and mail can be sent to Box 341. Paul L. Hanson, partner in the commercial refrigeration firm of Kold-Draft Northwest, Inc., of Minneapolis, gives his home address as 3520 West Calhoun Boulevard, Minneapolis 16, Minn. Augustus B. Kinzel, President of the Union Carbide and Carbon Research Laboratories and of the Electro-Metallizing Company, is located at the 320 Park Avenue headquarters in New York City. George S. Piroumoff, President, Brockway Motor Company, now lives at 800 Park Avenue, New York City. Charles L. Pool, a life member of the Alumni Association and former resident of Washington, D.C., gives his address as A.E.S.B., J.U.S.M.G., Espronceda 36, Madrid, Spain, without divulging any solution to the enigma of these impressive initials Addresses have also been received for Mrs. Alice Bronfenbrenner, Willard A. Case, and Gustav Frederickson.

John W. Barriger, 3d, Vice-president of the Chicago, Rock Island and Pacific Railroad Company, gave an address entitled "Year of Decision 1954" to the Railroad Supply Group at the Union League Club in Chicago. Reginald H. Smithwick, Surgeon-in-chief of Massachusetts Memorial Hospitals, spoke on "Surgical Treatment of Cardiovascular Disease" at Stamford Hospital under sponsorship of the Heart Association of Stamford, Conn., and the Stamford Medical Society. Reg headed the department of surgery at Harvard Medical School from 1928 to 1946 and since then has been professor and chairman of the department of surgery, Boston University School of Medicine, in addition to his post at the Memorial Hospitals.

The annual letter from our Class President, Raymond A. St. Laurent, has brought you up to date on 1921 affairs, including the important items of our support of the Alumni Fund, administered for us by Class Agent Edmund G. Farrand, and the task which your Secretary faces in obtaining fresh information from you for these columns. You have responded nobly to Ed's appeals. Won't you take a few moments now to put aside that commendable modesty and break the long silence with a letter to your Secretary about yourself and your family? Ray tells us that he recently ran into Fred M. Rowell, General Manager of the Plymouth Electric and Gas Light Company, in Pittsburgh, where Fred was attending an electric power forum.

Ray also sent a clipping from the Manchester, Conn., paper announcing that Saul M. Silverstein is on his third foreign mission, jointly conducted by the Council for International Progress and the Government's Foreign Operations Administration. Flying to Belgium from Idlewild Airport on March 7 at the special request of Belgian industrialists, Saul is a member of a four-man team, each one of whom will meet some 500 industrial leaders in Brussels, Ghent, Charleroi, Liege, Antwerp, the Duchy of Luxembourg, and possibly in Denmark. The object is to help increase local productivity and marketing as an important part of the current ideological battle. By improving living standards it is hoped to demonstrate the superiority of democracy to those who listen to the siren calls of Eastern Europe because they are dissatisfied with current economic conditions rather than for political reasons. A letter from John J. Healy, Jr., of Monsanto Chemical Company, St. Louis, indicates that he will have his boat in the water about the time these notes appear. We hope the acquisition of ship-to-shore radio equipment means he is undertaking a voyage to Boston for Alumni Day.

It is with profound sorrow that we record the passing of Ralph Leslie Rutherford in 1952 and express to his family sincerest sympathy on behalf of the entire Class. Associated with us in Course XII,

he later became associate professor of geology at the University of Alberta, and made his home in Edmonton, Alberta, Canada. No other details are available at this time.

Class of 1921 Calendar: Alumni Day Class Party, 5:00 P.M. on Monday, June 14, 1954, at Hotel Statler, Boston, preceding the Stein Banquet at the same hotel. Thirty-fifth Reunion in 1956 on June 8–June 10 at the Sheldon House, Pine Orchard, Conn., and June 11 at M.I.T. — CAROLE A. CLARKE, *Secretary*, Federal Telephone and Radio Company, 100 Kingsland Road, Clifton, N.J.

• 1922 •

Don Carpenter and his wife Louise went around the world last summer, their special objective being India and a trip on foot through part of the western Himalayas. Their two months' expedition took them to Florence, Siena and Rome, thence by air to Istanbul, Beirut, Karachi, and to Delhi on August 14. After sightseeing in Delhi and its vicinity which included Agra and the Taj Mahal, they went southeast by plane to Jaipur on the 19th. The trip continued from Jaipur to Amber by elephant after which they returned to Delhi on the 20th. Don, at this point, came down with a fever so they stayed in Delhi until the 22nd when they took the train north from Delhi to Pathankot and thence on to Manali by automobile something over 300 miles. Mandi, the first stop after leaving Pathankot, was reached late on the 23rd. The next day they continued by car to Kulu and the following day took them to Katrain with Manali being reached on the 25th. This apparently was a fairly strenuous drive because of the general condition of the road and the somewhat uncertain condition of the equipment. It was at Manali that the trek began on the 27th. They started with two riding ponies, and seven pack mules, packing two tents and all the supplies and personal equipment including double sleeping bag with air mattress and duffle bag.

The trek continued on the 28th, and on the 29th they reached Kotri. From Kotri they went up to 13,400 feet through the Rothang Pass and then down to Khokhasar at 10,400 feet on the other side. Next they went on to Sisu eight miles distant along the Chandra River.

On September 1 the trek continued to Goudla another eight miles down the Chandra River. Here the trail wound up and down along the river sometimes 100 feet above and sometimes a thousand feet. After two days in Goudla, they went on a short distance to Kylang where they had a chance to visit a Gumpa located high on the steepest hillside. On their return to Goudla they had a chance to sit down and look at the mountains.

The stay in Goudla continued until September 6 when they left to start their return to Sisu and thence on the next day to Khokhasar. On the 8th they went back over the Rothang Pass from Khokhasar to Kotri where they were entertained by minstrels at their Rest House. After a day in Kotri, they trekked back to Manali which was celebrated by a dinner party with a group of friends and an appropriate bottle of Scotch. On the 15th they left by station wagon for Pathankot, stopping the first night at Al-Hilal at the home of Her Highness, The Maharani of Jammu and Kashmir. They left the following afternoon to complete the journey to Pathankot which was reached late in the day enabling them to take the evening train to Delhi which was reached the morning of the 17th. This completed the Indian phase of the tour and they left on September 18 for points east stopping at Calcutta, Rangoon and reaching Bangkok on the 19th. After two days in Bangkok they flew to Hong Kong on the 21st for a five-day visit followed by a flight to Tokyo on the 26th. The flight home from Tokyo started on the 28th with a stop at Wake Island en route to Honolulu on the 29th.

Herbert A. Hickey has been with the Upjohn Company in Kalamazoo, Mich., as production engineer in the Chemical Engineering Department since November, 1949. Peter T. Lamont has recently become a member of the Board of Directors of the Standard Oil Company of New Jersey. For several years past he has been responsible for co-ordination of Standard's world-wide marketing activities. Crawford H. Greenewalt, President of the DuPont Company addressed the Commonwealth Club of California in San Francisco last January on the subject of "Let's Take the Long View."

We have learned recently from Don Carpenter that Claus Thellefsen of Oslo, Norway, was in a very serious automobile accident some months ago but that, as of February, he was making good progress toward recovery. We hope by now Claus is up and about again. His address is Mogens Thorsensgt 2A, Oslo, Norway. Wallace L. Howe has been elected vice-president in charge of research and development, as well as a member of the board of directors of the Norton Company in Worcester. Robert P. Ramsey who is a consulting engineer with Cooper-Bessemer Corporation of Mt. Vernon, Ohio, spoke recently at the professional division of the American Society of Mechanical Engineers in Wilmington, Del., on the subject of "Free Piston Gas Turbine Power Plants." C. Ford Blanchard has recently been elected president of the newly formed Washington Society of Investment Analysts. This group is composed of local trust investment officers, insurance company investment officers, partners and analysts of investment firms, government analysts, and professors and instructors from Washington universities. Blanchard is an expert on the evaluation of electric and gas securities and has appeared as a witness in rate cases with respect to the cost of capital to natural gas companies.

While this is somewhat belated information, the following members of the Class were present at the Annual Midwinter Meeting held in Walker Memorial in February: William W. K. Freeman, Robert H. Brown, Parke Appell, Theodore T. Miller, John F. Pierce, Jack Hennessey and Warren T. Ferguson.

Charles W. Stose was appointed general manager of crude oil purchases and sales for the Atlantic Refining Company at the end of last year. Bill has been with Atlantic since 1925. Eric Hodgins, noted author and member of the Board of Editors of *Fortune* was named along with Nathan S. Hazeltine, Science Editor of The Washington *Post* as the nation's top science writer for 1953 by the American Association for the Advancement of Science. As a result, Eric received the George Westinghouse Science writing award of $1,000. The article that won this award was entitled "Power from the Sun" which appeared in the September issue of *Fortune*.

David J. Roach died on December 27, 1953, at his home in East Bridgewater, Mass., following a long illness. Roach, I, was a road and highway contractor. He is survived by his wife, Alice, and five daughters. The sympathy of the Class is extended to his family.

New Addresses: George B. Bailey, Derby Turnpike, Orange, Conn.; Colonel Robert S. Barr, 10 Chauncy Street, Cambridge 38, Mass.; Laurence W. Codding, 79 Oxford Street, Glen Ridge, N. J.; Joseph H. Flather, 89 Highland Avenue, Chatham, N. J.; Herbert A. Hickey, 412 South Westnedge, Kalamazoo, Mich.; F. Reed Dallye, Aluminum Company of America, 1501 Alcoa Building, Pittsburgh 29, Pa.; Mrs. Clemens deBaillou (formerly Katherine M. Cowen), 889 Hill Street, Athens, Ga.; Roy W. Ewertz, Apt. B-411, 3636 16th Street, N. W., Washington, D. C.; Colonel Abraham G. Silverman, 16 Ridgedale Road, Scarsdale, N. Y.; E. Elvidge Taylor, 122 East Gilman Street, Madison, Wis. — C. YARDLEY CHITTICK, *Secretary*, 41 Tremont Street, Boston, Mass. WHITWORTH FERGUSON, *Assistant Secretary*, 333 Ellicott Street, Buffalo 3, N. Y.

• 1923 •

Letters are beginning to arrive from members in key areas, accepting the assignments to help promote the 35th reunion. William L. Stewart, Jr., XV, accepts for the Los Angeles area. He is executive vice-president of the Union Oil Company of California. Last Summer he acted as purser for his son, the skipper of the yacht *Chubasco* in the race to Honolulu while Henry B. duPont, IX-B, went along as navigator. They ended up first in Class A and second in the overall race. Congratulations! Stewart, you will recall, is also serving on the Board of the Corporation at the Institute. Philip Coleman, VX, and Francis Squibb, X, have accepted assignments for the Chicago area — they promise to develop news for the Secretary's next visit to the "windy city."

A recent issue of *Iron Age* carried the news that Walter F. Munford, II, returned to Worcester, Mass., as president of the American Steel and Wire Corporation where he first started his career as an open-hearth helper in the Wire Division of that organization. Among other things, he believes in hard work, the superiority of the Cleveland Indians, and the advantages of swimming, surf-casting, and golfing. Myles Morgan, II, First Vice-president of the Morgan Construction Company at Worcester, was elected a director of the Guaranty Bank and Trust Company in that city. In addition, he is a director of the Worcester Boys' Club, a trustee of the Worcester Foundation for Experimental Biology, and a trustee for the Worcester County Institute for Savings.

Walter S. Marder, II, has resigned as

executive vice-president of the Daystrom Furniture Division of Daystrom, Inc., but will continue as president of the National Association of Furniture Manufacturers. Penn Howland writes that the Class was well represented at the midwinter convention held in Walker Memorial early in February. Fourteen members were registered as attending – nice work, fellows!

The Review reports many changes of addresses – how about writing your Secretary and giving your classmates an inkling of what is going on? – HOWARD F. RUSSELL, *Secretary,* Improved Risk Mutuals, 15 North Broadway, White Plains, N.Y. WENTWORTH T. HOWLAND, *Assistant Secretary,* 1771 Washington Street, Auburndale 66, Mass.

• 1924 •

Rising in righteous wrath, Paul Cardinal hastens to correct a statement made by your Secretary which he considers not only incorrect but downright scurrilous. It was the one about his vitamins being of little value to us now. "They will," says Paul, "bring results even to the most failing of our people." Never lose faith in Paul's Pills. The Cardinals are having themselves a busy spring. In March, a drug convention in Florida; April, their daughter Joan married; May, back to Florida for a meeting of Rice Millers; and, of course, in June to Pine Orchard.

Latest in the Simonds Saga: "Just a line from Saigon where we poked the nose of the ship into the riverbank and turned around. That is the truth. Here only over night." Not at all clear whether this is the standard way to turn a ship in Saigon, or whether it was just an embarrassing incident of the Missouri class.

National Advisory Committee for Aeronautics tapped the Institute Faculty rather heavily this year for its various committees and subcommittees. Among the 13 chosen, Edward S. Taylor, Professor of Aeronautical Engineering. Ed got hit for two committees, one on aerodynamics, the other on power plants for aircraft. Ernst A. Guillemin, Professor of Electrical Communication, has authored another book, this one, *Introductory Circuit Theory.* Published by Wiley. In February, H. Gregory Shea led a seminar in New York on the subject of "Financing New Terminals Construction." Greg is assistant manager of the Equitable Life Assurance Company.

Two new changes of position recently. We told you about them briefly last month, now there are further details. S. Floyd Stewart has recently joined the Jack and Heintz organization in Cleveland. He is assistant to the President, and is in charge of new development. And Willard M. Van Allen severed his government ties in Washington last fall, came north to Rochester and Eastman Kodak. Willard is technical staff assistant in the office of Film Services at Kodak Park. This next isn't a change of job, just taking on an additional one. Thomas K. Sherwood, Professor of Chemical Engineering (and formerly M.I.T.'s Dean of Engineering), has been retained by the Fluor Corporation, Ltd., of Los Angeles as consultant to its Research Development Division.

Only a very few weeks left before the big Pine Orchard get-together. It will be a good time, with a goodly turnout. Whether or not you can make it, don't forget that plea for pictures, either transparencies or movies. Either bring them with you or send them to your Secretary. See you soon! – HENRY B. KANE, *General Secretary,* Room 1-272, M.I.T., Cambridge 39, Mass.

• 1925 •

The response to Ave Stanton's annual letter has been gratifying and there are still many of you that we would like to hear from. How about some news regarding your whereabouts and activities? Ave has also sounded out present and past class officers and the indications are that the preliminary plans for our 30th reunion appear quite acceptable. Start making your plans to attend now.

From Texas, Joe Russell has little to say about himself but is planning to attend the 30th with his wife and two daughters. He tells me that Albert S. Golemon, one of Houston's most prominent architects, of the firm of Golemon and Rolfe, is current president of the M.I.T. Alumni Club of South Texas. Ave Stanton is trying to work up a golf match between Ron Mitchell and Joe Russell, and Ron has written that he doubts if such a match would be fair to him seeing as Joe is so young and he is so old. He figures that the Texas air must be awfully good for Joe and states that the nearest he comes to it is through Texas wool in which he deals considerably. However, more Texas real estate appears in the wool than air. Tom Price writes to Ave and, among other matters, points out that he is still living in Erie which is a small town half way between Buffalo and Cleveland and suggests that some of the Class of '25 might stop off there on occasion.

I am sorry to have to announce the death of two members of the Class. Lermond F. Simonds, I, passed on on April 7, 1953. Notice of his death has just recently been reported to the Alumni Office, and of more recent date, Edgar E. Kellems, M.D., died on December 22, 1953 in Banning, Calif., of a heart attack. Notification of Kellems' death was received in a fine letter from Mrs. Kellems which is quoted in part: He had some 15 patents in his name, 10 on cable grips and the mandrels for their manufacture. His sister Vivien Kellems manufactures them in Stonington, Conn. His inventions in that field revolutionized that industrry.

"He also has a successful patent on a flanging tool, now being manufactured in Chicago. On these he received royalties. He also had a patent on a ceramic picture frame. He and I owned a pottery business in which we developed new ideas in design and tools for production. Although my husband did not graduate from M.I.T., he got a basic training there which made possible his further self-education. He had an experimental shop all of his adult life and as years went by, he spent all of his time developing his own ideas, mostly in the mechanical field."

He had two children, Kaye Kellems Andrews, now married with two sons. His son Kenneth Klinton Kellems is an A/1C in the Air Force. He is now stationed at Camp Beggs, El Paso, Texas. His only sister is the Vivien Kellems, industrialist. He leaves three brothers, Dr. Jesse R. Kellems, a minister in the Westwood Hills Christian Church, Colonel Homer F. Kellems of Siloam Springs, Ark., and David Kellems, an engineer who works with his sister, Vivien, managing her cable grip factory in Stonington, Conn."

Just recently, I received a letter from Masaru Kametani, II. I believe you will find his letter of considerable interest, so I quote the following from it: "I was born on January 25, 1900, graduated from M.I.T. in 1925, left the United States for Japan on September 25, 1925. I have a son (only son) born on September 25, 1927. The pay day is 25th every month in Japan. Thus, the number 25 has become a symbol to me until I tried to put my son to the Elementary School at Keio University in 1934. My son failed although his application number was 25.

"Meantime, my work at Mitsui Mining Company and Mitsui Chemical Company as a member of Fischer Synthesis Benzine Plant Installation Section was very successful until the termination of the World War II in 1945. Being dispatched from the Mitsui to Manchuria with my wife and son in order to install the Synthesis Benzine Plant there where we were detained until the end of 1946. Returning to Tokyo in December, 1946, we found that our house was saved from fire but lost all clothing and household goods, and furthermore, my post at Mitsui was suspended and I had to seek a job somewhere. I worked three years at S.C.A.P. (Supreme Commander of Allied Powers) until American engineers in assisting the mechanization of coal mines in Japan which was the base of all industry as a technical consultant. I met many M.I.T. men in your Army as well as civilians, and our M.I.T. Association of Japan has been reorganized, and it is going pretty well at present. Later, I got a pretty good job at Simitomo Machinery Company as an advisor to contact foreign manufacturing firms for technical co-operations.

"I wanted to join the 25th reunion in 1950 very much, but my lucky number 25 does not work any more, and I failed to obtain the transportation expense to Boston which is not a small amount by any means. However, I am still looking forward to joining you at the 30th reunion next year.

"I am corresponding with Messrs. Leroy David, Charlie Dyson and James W. McGuire who always encouraged me and helped me and my family a great deal making our living happier. I also want to say hello to all '25 men, especially the Course II men.

"I just received M.I.T. film entitled *Men of Science* which the Alumni Association of M.I.T. has kindly let us borrow. Many people have told us about the present M.I.T., but I did not actually realize it until I saw the film yesterday. It certainly made me wish to join the reunion if I have to cut off one meal every day to meet dear old classmates at the dear old Institute."

No doubt many of you saw in the newspapers that Marion W. Boyer has returned to Esso Standard Oil Company after serving for three years as general manager of the U. S. Atomic Energy Commission and has recently been elected executive vice-president of Esso. Also in the news is Gar-

vin A. Drew, XV, who has recently been appointed vice-president of Scovill Manufacturing Company, Inc., in charge of sales, service, advertising and sales promotion for A. Schrader's Son Division. Chink has been associated with this company since leaving the Institute, becoming a salesman in the Detroit area following his initial training in manufacturing methods at the Brooklyn plant, after several other assignments, appointed Pacific Coast manager in 1935 and five years later was recalled to Brooklyn and made general sales manager. During his many years in the tire valve field, he has become well known in the tire, petroleum and automotive industries and has served as president of the Los Angeles Rubber Group and the New York Sales Managers Club. — F. LEROY FOSTER, *Secretary*, Room 5-105, M.I.T., Cambridge 39, Mass.

• 1926 •

We are fortunate and grateful to have ample contributions to the notes so that most everything can be in quotation marks. One would not expect that yachting would take much time in mid-March but preparations actually are far more time-consuming than actual events. We have just been awarded the most important yacht racing event in the country at our little club in Rockport, and your Secretary is trying to get the club organized for it. The North American Star Boat Championship Races are to be held by our club in late August and about 50 of the best sailboat racers in the country will come for a week's intensive racing. You will be hearing more about it in this column, so let's now get on with the class notes and the quotation marks.

Gordon Spear has come to the rescue with a bang-up report from Detroit. "Dear George — I still have two communications from you which have not been answered and upon receiving the third note today, I feel that apologies are out of order so I'd better get down to writing you a short note. Insofar as class news is concerned, I don't have too much, although I did learn recently from Ed Ash that Morris is still in the Army and a lieutenant colonel located currently in Japan. We used to see Art Benson at a Detroit alumni meeting occasionally but it has been over a year since I have seen him, and at that time he gave technical assistance to the U. S. Rubber branch in Sweden. So far as I know, he is still with U. S. Rubber in Detroit in some kind of research and experimental work. I gave up a number of years ago trying to keep in touch with Dr. George D. Cummings since he is even a worse correspondent than I. You may remember that he and I went through Quincy High School together and, as a matter of fact, he is the one responsible for introducing my wife to me. I have called at the Michigan Department of Health Laboratories on two occasions within the last 18 months in an effort to talk with him but did learn from his secretary that he has two children, the older being a girl recently graduated from Michigan State College, and the younger being a boy still in high school.

"You may recall recently reading of two instances where important serum was flown to distant points, one in the United States and one in Europe, for the treatment of patients suffering from hemophilia. The newspaper articles dealing with these instances stated that the Michigan Department of Health Laboratories is the only known source for this serum, and I have every reason to believe that the development of this serum was performed under the direction of Dr. Cummings who is in charge of these laboratories. (By strange coincidence, your Secretary read in this morning's Boston *Herald* that supplies of this serum were being flown to Boston for a young woman who is on the danger list.) During the regime of former Governor Sigler, Dr. Cummings was director of Public Health for the state but since this is a political appointment, he returned to his regular position as head of the Department of Health Laboratories when Governor Sigler was not re-elected.

"I understand Ray Hudson is back in Michigan again living in Birmingham but is no longer connected with Goodyear. John Longyear is still one of the cornerstones of our Detroit alumni organization and is still as active in M.I.T. affairs as ever. Dave Sutter together with John Longyear, was quite active in the recent M.I.T. Midwest Regional Conference which was put on January 31 here in Detroit. Dave handled all of the publicity in connection with this conference and John served on one of the other committees. Yours truly was on the Finance Committee but didn't make a nickel out of it. The Midwest Regional Conference was an outstanding success, and I understand we had 250 in attendance and, of course, another member of our Class, Jim Killian, was with us on that occasion. I believe the next issue of The Technology Review will contain a fairly comprehensive account of this conference and since it was the first time that the Detroit Club endeavored to do such a job, we were all very pleased with its success. I firmly believe that the combined efforts of Adam Stricker, Jr.,'29, president of the Detroit Club, and Morgan Collins, Jr.,'27, Vice-president, together with Dave Sutter'26, was the reason for this success.

"We still enjoy living in the country at Walled Lake, Mich., although our lake level dropped about two feet last summer, and the golf courses became fairly dry. Our home is 31 miles from the office but I don't mind the drive which seems to be worthwhile once I get out of metropolitan Detroit to the cleaner air of the suburban areas."

Thanks, Gordon, for getting me off the hook this month and for an excellent report of activities in the midwest. I am marking my tickler for February, 1955, to hear from you again, except, of course, come and see us when you are in New England. An article by Bill Callahan was recently published in *Mining Engineering*. Bill is manager of exploration for New Jersey Zinc Company, and a few quotes from the article will give a rough idea of the type of his activity.

"The life span of a mining company operating solely in the United States today is in direct proportion to the success of its exploration effort. This is in contrast to the situation some years ago when companies could rely on appreciable opportunity to purchase interests in discoveries made by prospectors. The reduction in activity of prospectors has come about because of the lack of opportunity to find orebodies in outcrop, the high cost of finding buried or blind orebodies, and the difficulty of financing such speculative ventures by public subscription. Accordingly, there has been a marked increase in exploration effort by industry and by government. Someone must continue the work of the prospector if the United States is to maintain its own supply of raw materials. It is appropriate that mining companies take the initiative in mineral exploration if they wish to survive in a free enterprise system.

"In our current exploration efforts 70 geologists and a total of 100 people are employed, exclusive of research department personnel. Twenty-five drill rigs are operating under contract, and about $1.5 million is being expended annually."

It is rather interesting to have an opportunity to take a peek at the type of work another classmate does because most of us are in pretty diversified activities. Bill's work sounds most interesting. The clipping services have brought in several bits of news. Dick Johnson has been appointed water commissioner in his home town of Newburyport, Mass. Captain Francis Whitaker has returned from the Navy (he was commanding officer in the Quincy, Mass., Shipbuilding District) and has joined the Bakelite Company of Bound Brook, N. J. Alden Peterson has been promoted to Vice-president of Trundle Engineering Company with headquarters in Chicago.

A couple of issues back we inserted a recipe for "he-man" dessert and felt that we were straying a bit from the beaten path. It was, therefore, with considerable satisfaction that we read the '39 notes in the same issue which were entirely composed of a quotation from *Gourmet* about Cella's restaurant in New York which is operated by Dick Cella of that Class and which has intrigued us sufficiently to want to try the restaurant on our next Gotham visit — perhaps some of our New York classmates can give us a report on it. It occurs to us that Bill Rivers could send us a "formula" for some especially interesting dish from India, Whit Ashbridge from Venezuela, Bill Edwards from Hawaii, and our many classmates from south of the border could really provide us with some sizzling ideas. If you will send them along, we will try them out and report through the notes. With deepest regret we report the death of Bob Mattson who was aboard the British Overseas plane that crashed at Singapore on March 13. — GEORGE WARREN SMITH, *Secretary*, E. I. duPont de Nemours and Company, 140 Federal Street, Boston, Mass.

• 1929 •

Bill Baumrucker, IV, joined the Reunion Committee at its last meeting at the Faculty Club. Bill is in the running for the title of "least change." He hasn't put on any weight or grey hairs, quite an accomplishment for a '29 man at this stage. Sadik Baroudi, in a recent letter to Brig Allen, indicated his intention of coming from Syria for the reunion. Others nearby take note. Thomas Doherty, XVI, is project engineer with Hamilton Standard, division of United Aircraft Corporation at Hart-

ford. Charles Taylor, II, is vice-president of Nash-Kinsella Laboratories in Missouri. He recalls his past "First job was 'layout work' for Otis Elevator Company in Harrison, N.J. Then I decided to head 'West' and enter the alloy steel field with American Brake Shoe and landed in Chicago Heights, Ill. Got married and was immediately hit by 'the depression.' Moved to St. Louis, Mo., and went to work for Ralston Purina Company, where I remained for 14 years. Finally decided to enter the 'chemical specialty' field and am at present manufacturing insecticides, rodenticides, fertilizers, dairy sprays, and so on. Summers have been taken up with travels all over the States, Mexico, and Hawaii and with hunting and fishing in the Ozark Mountains of Missouri and Arkansas."

Robert Loomis, X, is process engineer with Pratt and Whitney in Hartford, Conn. He spent 15 months with U. S. Gypsum in Chicago, and 20 years with Case Bros. in Manchester, Conn., before joining Pratt and Whitney. Robert Sutherland, X, is with A. C. Lawrence Leather Company in Peabody, Mass. Bob lives in Lexington. James Howarth, IV-A, is with the C.A.A. after several turns in and out of the Marine Corps. Jim writes of his doings. "I left Tech in 1927 to learn to fly with the Air Corps. Following that, I was in various phases of commercial aviation interspersed with periods of active duty with the Marine Corps, which I had joined as a reserve officer in 1931. Became associated with the C.A.A. as an inspector in 1938 and was based in Michigan. Mobilized in December, 1940, and served in various capacities with the Marine Corps until released from active duty in October, 1946, after which I returned to the C.A.A. Was based in Atlanta, with a short tour in Alaska, until July, 1947, at which time I was transferred to Washington, D. C. While on active duty in the Virgin Islands in 1937-1938, I married the former Miss Marjorie E. Jones of Utica, N. Y. During my W.W. II service, I was awarded the Bronze Star Medal with Combat V for services with the 2nd Marine Division at Tarawa, Saipan and Tinian in the Pacific. In 1949, I was promoted to the rank of colonel in the Marine Corps Reserve. As a result of my experiences in W.W. II, I am convinced that that was a useless way to settle any problem, but that if we must fight to retain not only our own freedom but also that of other God-fearing people, then we should go all out and not pull any punches."

All of which reminds me of a rather rough sophomore year and the fact that I nearly went to Kelly Field with Jim. Abner Hertzmark, IX-B, owns and operates the Kinslee Shop in Shaker Heights, Ohio, after having worked with such stores as William Taylor Son and Company, Cleveland, G. Fox, Hartford, and Mandel Bros., Chicago. Abner is married and has two children. Henry Herrel, IV, is with Schmidt, Garden and Erikson, architects in Chicago. He recalls his time since Tech as follows – "Upon finishing at M.I.T. remained in Boston until 1935 gaining design experience in Boston architectural offices. Then after a brief stay in Greenfield, Mass., went on to New York and spent the next years until 1947 working as a designer for various firms namely, Harrison and Fouillioux, Ralph Walker, Raymond Loewy, and York and Sawyer. Since 1947 we have been in Chicago. Am busy designing hospitals and laboratories for the above-mentioned firm who have a national practice. Gives me a chance to get around the country occasionally on business trips which I find most enjoyoble. My daughter, upon graduating from Northwestern University, married a young instructor in English at Illinois College and they are at present attending Columbia University working on their Ph.D. and masters respectively."

Pierre Vinet, II, writes of his doings – "Have worked for American Anthracite Institute and different coal companies as consulting engineer. Have travelel three times in Europe – last year was guest of British Council of Education – was six weeks in England – saw the coronation and other events in that period. Visited France, Italy, Switzerland, Belgium, and Holland. Have visited the United States several times. My life has been, and still is, the life of an average married man who loves his wife and his children. It is very pleasant, full of unexpected events and never boring. I hope to be able to go back to the French Riviera and relax – naturally when a few of my children will be on their own." Pierre is head of Mechanical Engineering Department, Ecole Polytechnique, Montreal. He has five children. Edward Papenfus writes from South Africa – "after leaving Tech I worked for one year at the International Nickel Company, Sudbury, Canada, as an assistant surveyor. After this I came out to Africa and was a field geologist with Rhokana Corporation in Northern and Southern Rhodesia. In 1933 I joined the South African Townships Mining and Finance Corporation first of all as a field geologist and in 1935 I became consulting engineer. The high light of my career with 'Townships' was the discovery by myself, working in a team with three others, of the now famous Orange Free State Goldfields, 1938–1939. Due to a change in control, I left this Corporation in 1945 and joined my present employers, where I hold an executive position. I visited the United States again in 1949 and 1952. I have an ambition to settle in North America, which I consider is more stable politically than any other part of the world."

He is consulting engineer for the African Exploration Company, Ltd. William Whiting, I, is rating engineer for New England Fire Insurance Rating Association and lives in West Hanover, Mass. He sends along his formula for life and results: "A 25-year graduate is developed in several ways. Following is my personal formula: Take 25 years of fire protection work throughout New England for the stock fire insurance companies, mix with that work five intensive years of development and maintenance of fire protection in industries with heavy war contracts and add slowly the double distilled essence of life. This essence is peculiar to each of us and in my case consists of my Prom Girl who is just as lovely and exciting as she was on the big night, a daughter who is everything that title implies, a steady capable son, a term on the School Committee, camping in the White Mountains, lobsters on the coast of Maine, a Boy Scout troop, friends – Of such matters has my past 25 years been happily and solidly filled giving the energy and enthusiasm to start the next 25." Vincent Esposito, II, is a colonel stationed at West Point as permanent professor of Military Art and Engineering. Ernest Brown, X-A, is superintendent of Laboratories, Casper Refinery of Standard Oil Company (Ind.). He has three children. Henry Gibbons, II, is living in Dallas, Texas, where he is chief of Development for Chance Vought Aircraft, Inc. Henry spent 10 years with Goodyear Zeppelin before shifting to Chance Vought. Hiram Lyke, XVI, is with Lyke Furniture Company, Oconomowoc, Wis. He flies his own plane for travel and recreation. Hiram has three sons, one of whom is at M.I.T.

Rodolphus Swan, Jr., VI, is with Sylvania Electric Products, Seneca Falls, N. Y. He writes of his doings – "Started work with one of Sylvania's parent companies (Hygrade Lamp Company) on 6/17/29 at Salem, Mass., as an engineer concerned with design and manufacture of radio receiving tubes. Still with same company. Except for three months in 1935 when I was at their Emporium, Pa., plant I worked in Salem for 20 years. After 1945 transferred to Incandescent Lamp engineering – moved out here in March, 1949, when the division was created. Now have 100 engineers – hurrah for color television! Family grew up normally – guess I was lucky. Nothing much serious happened to them or my wife and myself. My son, of course, will have to serve a hitch as a 2nd lieutenant in the Army. I was also lucky in World War II – too damned old – although there were some days I would have rather been in the Army – government orders for radio tubes kept me busy. Have enjoyed past 25 years immensely and hope to return to Yankee-land some day. I have certainly learned a lot since I left M.I.T. principally about humans." Edward Godfrey, XVI, writes that he is "jack of all trades" with the Waldorf Instrument Company in Huntington, N. Y. He continues – "I've had my share of experience, but alas, nothing extraordinary in their quality, frequency, or riches. I started out being stable with the Standard Oil of New Jersey and thence in the aircraft business during the war. Subsequently I've been in sales, manufacturing, and administrative work covering a wide variety. About the only thing I haven't done (alas) is to practice that for which Course XVI trained me. On the whole, we Godfreys are getting along well, but so far of my four boys it seems as though only one, now in high school has ambition to go to Tech."

William MacLean, VI, is associate professor at Polytechnic Institute of Brooklyn. He writes: "After Tech: Bell Laboratories, then to Europe for graduate study. Germany and France – Munich, Berlin and the Sorbonne. Back home for the crash (the second one – 1932). In the depression an actuary – horrors. Then back to engineering and finally to teaching. At Poly since 1940. Do consulting for a buck and research for fun – sometimes they even overlap. Write articles but no books – still too young for that. Am too busy with that damn mousetrap. Constitutionally an E.E. but dabble in M.E., Pat-

ent Law, Production Engineering, or whatever else it takes to make a mousetrap. Usually busy, but have been back to Europe since the war. Paris is still wonderful – made such an impression on my wife she wrote a book about it. Views on life, and so on; that Paris, and so on, is still wonderful, and so on, when our children grow up, and so on." Seymour Baum, II, is vice-president, B. H. Aircraft Company, Inc., Farmingdale, N. Y., and sends along a very complete story of his doings: "From Tech to the aircraft business in 1929 being associated with my father in a new venture. Depression caught us in 1932. When faced with 1932 salary offers decided still better to work for ourselves. Formed new company on very small scale – still concerned with aircraft. Left to go with Fairchild Aviation in charge of manufacturing military and transport aircraft for two years. Then couple of years active duty with Army after which back to the small company (B. H. Aircraft) in 1937. By 1939 the future was very much more assured. Married in 1939 – doing well – new home in 1940 and then the country took a lien on my services for five years plus. Met a lot of people – saw a large part of the world first hand and was very happy to return to B. H. Aircraft at the war's end. Since then have been eating regularly with my family – watching the kids grow and enjoying life. Wife and I are currently engaged building (loose use of the term) a new house in Brookville, Long Island. Consequently current cash position overextended but definitely on a worthwhile venture. To sum up I'd say God has been good to us, the U.S.A. is the only place for me, taxes are too high, and that far too much emphasis is placed on security. Far more is accomplished through dissatisfaction and insecurity. Only then can we build better today than we built yesterday."

E. C. Kent, XIV, is assistant manager, Tonowanda Research Laboratory, Linde Air Products Company. Chester has four daughters, including twins. James Bennett, XIV, is chairman, Chemistry Department, Hillyer College, Conn. James Coe, VI, is Engineer at Edwards Air Force Base, Edwards, Calif. Floyd Buck, XV-1, is Superintendent of Engineering, United Illuminating Co., New Haven, Conn. He lives in Hamden. Eugene Gilman, X, is process development engineer with the Bakelite Company. He lives in Plainfield, N. J. Bill Jenkins, VI, is assistant purchasing agent, Houston Lighting & Power Company, Texas. George Burgess, VI, is vice-president of Hawaiian Pineapple Company. One month to Reunion – time to make those final plans. – PAUL F. DONAHUE, *Secretary*, Conti and Donahue, 239 Commercial Street, Lynn, Mass. FISHER HILLS, Assistant Secretary, Dewey and Almy Chemical Company, Cambridge 40, Mass.

• 1931 •

It has been quite some time since your Secretary has had any class notes for 1931. The material has been very scarce and at long last enough has come along to warrant a few columns. First, and foremost, comes word that Howard Richardson is now vice-president in charge of engineering operations for Sylvania Electric Company. This promotion has been in effect for some time and our congratulations although belated, are none the less sincere.

Dick Kropf, II, has been elected to the Board of Directors of Belding Heminway Company, Inc. He has been with the company since 1931. In 1934 he was promoted to director of the industrial thread division. His promotion to director of research came in 1934 and was followed by his appointment as vice-president in 1950. Both of these posts were retained when in 1952 he assumed responsibility for all merchandising and sales activity for the company's industrial thread division. In February, at Springfield, it was my pleasure to speak before the Engineering Society of Western Massachusetts and after the meeting was pleasantly surprised to meet Otto Kohler, IV-A, Otto is now business manager and superintendent of Buildings and Grounds for Mount Holyoke College.

Marriage notes concerning our Class are becoming very rare, and it is a pleasure to pass on the news that Mr. Charles Larkin, XV, was married in January to Miss Maryrose Hand, at Randolph, Mass. Mr. Larkin is with the Veterans Administration in Boston. Another Boston note concerns Ralph Davis, XV, Fairfield and Ellis, the well-known Boston insurance firm, announced the admission of four new partners, among them, Ralph Davis. He has been with the firm since 1932, with exception of the four years he served in the Navy during World War II.

Willis Fleisher, VIII, sent along a nice memorandum to bring the record up to date. He is now with Max Marx Color and Chemical Company, Irvington, N. J., where he holds the position of Vice-president and Secretary. He and Mrs. Fleisher have two children, John and Ann, 16 and 12 years respectively, and John hopes to be a member of the Class of 1959. The Fleishers are living in West Orange, N. J., and Willis is making plans for our 25th Reunion. The new "return" cards are starting to produce results. A card from Bob McNeilly, II, reports that he is now in Detroit and is employed by the American Metal Products Company. A similar card from Loudon C. Page, IX–B, comes from Mount Hope, W. Va., and he reports that he is with Gannett, Fleming Cordry, and Carpenter, who are engineers for the West Virginia Turnpike. Please keep your material coming, and it will appear in The Review. – AUGUST L. HESSELSCHWERDT, JR., *Secretary-Treasurer*, 28 Hillcrest Road, East Milton, Mass.

• 1932 •

The good spring weather has brought some increase in your Secretary's volume of M.I.T. news. Most items seem to concern some of our graduate and special student associates. I hope Tom Sear's President's letter will be reaching you soon and you will all feel inspired to send me whatever little bits of information you may have on the questionnaire forms. I am sure there are many interesting things going on among our classmates that should be of interest to all.

Russell Robinson, who came over from England to be with us for awhile in Course IX–B, has returned to this country within the past year, as a self-styled refugee from socialism, to take up permanent residence. He first joined Olin Industries at New Haven, Conn., as chief of their Auto Weapon Division, but now writes that he is moving to the University of Chicago to take up an appointment with the Chicago Midway Laboratories after having worked as a consultant for the project there on loan from Olin for two weeks a month since last July. The Robinsons have put the oldest of their four children, Kit, 14, and Julia, 12, in the University Laboratory School there and are preparing to settle down to becoming full fledged universityites.

Al O'Neill is another one of our classmates on the staff at M.I.T. He both researches and teaches in the Department of Building Engineering and Construction. He reports a most natural hobby of developing new ideas and innovations for better living around his own house. During the war, Al worked on Navy construction as a civilian superintendent. He married Helene J. Kelley in 1950, with no children to report at the time of our 20th reunion questionnaire. David Kiley, who came to Tech for his master's degree in Chemistry with the Class of '32, is being named to the principalship of the new Burncoat Street Junior High School in Worcester. Since leaving Tech, Dave has been largely concerned with teaching, both in and about Worcester and during the war at Annapolis.

Ed Rosenquist continues to hold forth for Monsanto Chemical Company as assistant director of their large Central Research activity at Dayton, Ohio. Ed lives with his wife, June E. Palm, and their three children, at 4004 Lenox Drive, Dayton. John Fellows sends word that he has left American Brake Shoe Company to become chief metallurgist for Mallinckrodt Chemical Works in St. Louis. He had been in foundry research for Brake Shoe since 1937, except for time out with the "Manhattan Project." His new assignment relates to the problems of uranium refining to produce metallic ingots.

Oliver Scharnberg is senior consultant for Scudder, Stevens and Clark in Boston, investment counselors. Oliver is deeply interested in boys' activities and is currently a Boy Scout Commissioner. During the war he was captain in the Anti-Aircraft Corps. He lives with his second wife, Lydia Draper, at 195 Cliff Road, Wellesley Hills, and with five children, they have a full house indeed.

Bob Prescott lives at 6 Forest Street, Lexington, Mass., and is an electronics engineer for Raytheon Manufacturing Company. Bob was connected with development and design of magnetic mines during World War II and since has been principally concerned with the design of radar modulators and addition circuits for radar computers. With his sons, Bob and Ted, he raises bees on the side.

From far off Vancouver, B.C., comes word that Norman Paquette is holding forth as western area vice-president for Stevenson and Kellogg, Ltd., Canadian Consulting Management Engineers. With his wife, Margaret Hegeman, he lives at Dundarave, P. O., Hollyborn, B. C. Victor C. Studley has been made assistant to the President of the Bucyrus-Erie Company, South Milwaukee, manufacturers of earth moving machinery.

Two more of our classmates are busy with the International Business Machines Corporation – William H. Reid is manager, Special Product Planning Department, and Paul Robert is technical assistant to Quality Manager at their Binghamton, N. Y., plant, where besides being a deacon in the First Presbyterian Church, Paul is absorbed in a number of community activities. – ROBERT B. SEMPLE, *Secretary,* Box 111, Wyandotte, Mich. *Assistant Secretaries:* WILLIAM H. BARKER, 45 Meredith Drive, Cranston, R. I., ROLF ELIASSEN, Room 1–138, M.I.T., Cambridge 39, Mass.

• 1933 •

You will all remember Gene Cary, XV, who was the senior student staff captain on the Walker staff. He stayed on at Tech for a couple of years, then turned to real estate operations in the Chicago area. But the West was too much in his veins, and he moved back home to Colorado where he operated Rabbit Ears Camp. Gene recently reported some good and some bad news; oil was discovered on his property and he has sold his holdings. We were distressed to hear that Gene contracted multiple sclerosis and can no longer walk, but otherwise feels fine. Gene reports that his two boys turned out to be "midgets" (by western standards): the younger, a freshman in high school, is six foot one, the older, a freshman at Colorado College, is a "mere" six foot five. Gene and his family are living in Steamboat Springs, Colo.; how about writing to him?

Congratulations this month to three of our associates: to Dave Babcock, XIII, 343 Sagamore Drive, Irondequoit, N. Y., promoted to superintendent of motion picture products and commercial products of Eastman Kodak; to Gunter Kohlmann, II, recently appointed sales manager of Ampower Corporation, 50 Broad Street, New York City, suppliers of optical marking systems and marine equipment. Gunter recently spent three weeks in Germany, Holland and Belgium; and to Michael Sampas, XVI, now a colonel serving as commanding officer of the First Marine Aircraft Wing's Air Control Group in Korea. And in the news with special commendation are Morris Cohen, III, Professor of Metallurgy at the Institute, who received the Mathewson Gold Medal at the midwinter meeting of the American Institute of Mining and Metallurgical Engineers; Norman Levinson, VI–A and XVIII, who was awarded the Bocher Memorial Prize by the American Mathematical Society in recognition of his outstanding work in the important field of differential equations. The Bocher Prize is awarded every five years for notable research in analysis; and recognition by the press to Wilbur Huston, VIII, on the 25th anniversary of Bill's selection as the first Thomas A. Edison scholar. Otherwise in the news: Robert Heggie, V, who presided at one of the symposia at the spring meeting of the American Chemical Society; Bob is with the American Chicle Company, Long Island City; William Barbour, VI, recently addressed the Rotary Club of Waltham, Mass., on some of the recent developments in the nuclear instrument field.

Dave Smith, VI, Vice-president of Research at Philco, was quoted in *Science News Letter* on his recent speech before the Washington Chapter of the Institute of Radio Engineers. Your Secretary reports an interesting meeting of '33 New York group in early March with Don Fink, VI, Director of Research at Philco, speaking on colored television. In addition to George and Don, here's a rundown on those attending: Mal Mayer – still with Schwarze Laboratories; Bill Gray – back in Metropolitan New York with Kuthe Laboratories, Newark, N.J., manufacturers of vacuum tubes; John Wiley – Port of New York Authority; Ed Goodrich – Induction Heating Company; G. Garbarino – still with Westinghouse International in charge of the Western European territory; Jacques Chepard, Industrial Engineer with Dictagraph Products, Jamaica, N.Y.; Leighton Rickards, Production Manager, Akeley Camera and Instrument Company, New York City; Bill Arnott – Director of Research, Burndy Engineering Company; George Maynard – Sales Department of United Car Fastener; George Ropes – Acme Air Cargo Company; Gene Nedbor – Caldwell Wingate, Building Contractors; Jack Andrews – formerly with General Cable Company; Dave Nason, Purchasing Agent, American Safety Razor Company, Brooklyn, N. Y.

Finally, random notes from near and far: Otil L. Shurtleff, XV, now living at 5 Secor Drive, Port Washington, Long Island; Richard B. Hanley, has just bought a home at 445 East Highland Avenue, Sierra Madre, Calif.; Maurice L. Brashears, XII, still searching for water supplies, is currently on the prowl in Cuba; Prentiss Lobdell, X, living in Westport, Conn., is still looking over economic horizons for Esso – forecast, "partly cloudy but no storm." – GEORGE HENNING, *Secretary,* 330 Belmont Avenue, Brooklyn 7, N.Y.; ROBERT M. KIMBALL, *Assistant Secretary,* Room 24–204, M.I.T., Cambridge 39, Mass.

• 1934 •

Only one month remains before we get together for our 20th reunion. Your reunion committee has done an excellent job of planning and organizing the party and we can look forward to a wonderful time. This will be the first time that there was a majority vote to invite wives to attend a reunion, and we feel sure that that decision will do a great deal to insure a thoroughly enjoyable party. If you have not already made your plans to attend, do not put it off any longer. Get in touch with Carl H. Wilson at the American Optical Company, 80 Heard Street, Chelsea, Mass., and ask him to put you on the list.

James E. Archer has been named associate director of glass research for the Pittsburgh Plate Glass Company. The company is erecting a new research laboratory to accommodate their expanded program. Before joining the glass company, Dr. Archer taught in the physics department at the Institute. G. Roy Fugal, manager of employment practices for the General Electric Company, recently gave a talk on "New Techniques in Reducing Industrial Accidents." The talk was given before the Industrial Safety Council of Lowell, Mass. Dr. Fugal has company-wide responsibility covering 123 plants of the General Electric Company.

Leland S. Person has been named assistant treasurer of Porter Hospital of Middlebury, Vt. He resigned his position as division commercial manager of Central Vermont Public Service Corporation to accept the hospital post. He makes his home in Chipman Heights with his wife and two children.

Charles L. Wright has been appointed head engineer of the design division of the Boston Naval Shipyard. After graduation he was employed in the design division of the Fore River Shipyard at Quincy. He then became a naval architect in the design division of the Bureau of Ships in Washington. In 1951 he was made head of the Submarine Branch of the Navy Shipbuilding Activity in Philadelphia.

George E. Westefeld was recently promoted from the position of plant engineer of the Torrington Branch of American Brass Company to that of mechanical supervisor. Edmund Q. Sylvester has been made president of the Griffen Wheel Company, a subsidiary of American Steel Foundries. Two papers were presented recently by Eric J. Isbister, head of the Radar Engineering Department of Sperry Gyroscope Company. The first, "Elements of Radar," was presented at the University of Notre Dame and the second, "Radent Beacon Evaluation Tests," was presented at a meeting of the Radio Technical Commission for Marine Services in Chicago.

Congratulations to Mr. and Mrs. Herbert R. Schwarz on the addition of Elizabeth Terry to the family. She was born February 10. So long until next month when I will look forward to seeing you at the reunion. – JOHN G. CALLAN, JR., *General Secretary,* 184 Ames Street, Sharon, Mass.

• 1938 •

A card from Harold McCrensky announces that he has "just been appointed New England manager for Bruce Payne and Associates, Management Consultants, with office in John Hancock Building. Hope members of the Class drop by to say hello. Still live in Fitchburg, Mass. Domestic front quite busy with our four children; Paula, age 10; Susan, age 8; Jay, age five; Andrea, age two. Now looking for eight-room house near Boston, preferably Belmont – any suggestions will be appreciated."

Vernon Lippitt moved to Winchester last September and is "now studying for a Ph.D. in economics at Harvard University. Will Lyons, also '38 I believe, is here, too, doing the same thing." A note from our Assistant Secretary Doc Wochos, with due credit to Jonesie, relays a message from Arch Copeland reporting "a chance meeting with Jim Hess, VIII, in Toledo. Jim is now a metallurgist for Kaiser Aluminum in Portland, Ore."

A few news items lead to the conclusion that the Class is still active in various endeavors. Ascher Shapiro has been appointed to the subcommittees on Internal Flow and on Compressors and Turbines for the National Advisory Committee for Aeronautics during 1954. Jonathan R. Roehrig is a coauthor of a paper entitled "Wide Range Vacuum Gauge" which was

published in the November 1953 issue of *Electronics*.

Charles Burchard spoke recently to a joint meeting of the Detroit Chapter of the American Institute of Architects and the Metropolitan Art Association. His lecture, illustrated with slides, was on "Architecture and Environment." He is director of architecture for A. M. Kinney, Inc., consulting engineers in Cincinnati. — DAVID E. ACKER, *General Secretary*, Arthur D. Little, Inc., 30 Memorial Drive, Cambridge 2, Mass.

• 1939 •

Plans are reaching their final stages of development for our 15th reunion at Snow Inn, Harwich Port, Mass., from June 11 to June 13. Those of you that have not indicated that you intend to come should let us know immediately since only those that have returned the cards stating they will probably come will receive the preregistration forms. As of March 15, over 100 have said they will probably be there. The boating, fishing, swimming, and many other activities should attract you all.

Some of those that plan to be there are Will Jamieson, Win Steele, Charles S. Parker, Eli Danenberg, A. Lawrie Fabens, Jr., Mel Falkof, Hal Seykota, Bill Phillips, Brownie Parker, Henry Littlejohn, Perry Crawford, Jr., Dave Bartlett, John Herlihy, Albert Gabriel, George Estes, Jr., Bill Pulver, Jim Smith, Wilson Keene, Dick Cella, Wiley Corl, Jr., Bob Casselman, Abraham Zimmer, Mark Curgan, and many more that we don't have space to list.

Let's get those cards in if you haven't already done so. See you on June 11. — GEORGE BEESLEY, *Secretary*, 38 Homestead Road, Lynnfield Center, Mass. MICHAEL V. HERASIMCHUK, *Assistant Secretary*, P.O. Box 495, Bethlehem, Pa.

• 1940 •

After dearth of news, this column once again reaches respectable proportions. Your Secretary's mail was enriched this month with a letter from Ray Keyes. Excerpts from this letter and his annual Christmas letter follow: "Here is a copy of our annual Christmas letter in case I have not sent you one already. Extract from it, as you will, for the Class of '40 notes. If I am not up to date on dues, let me know. I think I paid sometime during this last year." Ray has paid his class dues but for those who haven't, the price is still $2.50 for five years.

"Once again at this time of the year, we send out greetings from our home into your home. However, for us it is now different, and that is because of Courtney who came to us on August 6. He is not able to contribute much to this letter except to provide subject matter. He has sandy hair, deep blue eyes, and a ready smile which he displays at the least provocation, although it becomes more pronounced whenever he hears his daddy yodel.

"Ray is still active as a marine engineer, crossing the Oakland-San Francisco Bay Bridge every day to work. Virginia did some part-time nursing the first few months of the year. From now on, her talents will be used in behalf of her menfolk, Ray and Courtney, with particular emphasis on the latter.

"Our summer vacation consisted of week-end trips to Putah Creek. We do not expect to go there next year because a dam is being constructed there and our usual campsite will be 200 feet under water.

"For extracurricular activities, Ray has retired from scoutmastering but continues active as a troop committee chairman. On Tuesdays he fights the never-ending battle of the bulge (his waist-line) by working out in gymnastics at the Berkeley Y.M.C.A. We still live at our same residence in Berkeley (1706 Jaynes Street). Old friends and new are always welcome here. We are very grateful for the blessings we have received this year and hope you have been as fortunate."

Also, from Clement Burnap comes word of his recent activities. "Returned from Europe December 22, 1953, where acted for three years as technical manager and foreign representative for Clark Bros. Co., leading manufacturers of engines and compressors for petroleum, chemical and manufacturing industries. In this period resided in London and Milan, Italy, and covered Europe and Near East from Norway to Saudi Arabia and French Morocco with six trips to Yugoslavia. Have now been appointed exports sales manager for Clark Bros. Co., in charge of world-wide markets and will have headquarters in New York City, at 122 East 42nd Street." — Shao E. Tung'50, recently completed studies for his doctor's degree in chemical engineering at Tech and has joined Continental Oil Company's development and research department at Ponca City, Okla., as a research chemical engineer. After graduation with us, Shao was a chemist with a paper mill in Shanghai and later superintendent of a paper and pump mill in Formosa. Then he studied at the University of Maine from which he received his master's degree in 1949. — Phelps Walker has been appointed works manager of the Janesville and Menominee, Wis., plants of the Parker Pen Co., and is responsible for production, quality, scheduling, planning and engineering at these plants. Previously, Phelps was associated with the Fram Corporation and served for three years as an engineering officer aboard a Coast Guard vessel. — Gary Steven has been appointed senior metallurgist at Armour Research Foundation of Illinois Institute of Technology, Chicago. Gary was promoted to senior scientist, highest professional position at A.R.F., in recognition of his outstanding contributions on a wide variety of research projects. These included work on high-temperature thermocouples low-energy fuses, clutches, and the solution of special problems encountered with the production of steel cartridge cases. Gary, his wife, Lillian, and their two children, Gerard, eight, and Kathleen, two, live at 4225 West 99th Place, Oak, Lawn, Ill.

Once again, the Class has been honored through the work of one of its members. John Pellam'47, Technology Ph.D., received the Physical Sciences Award of the Washington Academy of Sciences on January 21, 1954. John, who is chief of the cryogenics physics section of the National Bureau of Standards, was cited specifically for his contribution in the field of low temperature physics. — If you enjoyed this issue of class notes, write Al and let him know why; if you did not enjoy them, write him why not; in any event, write Al. — ALVIN GUTTAG, *General Secretary*, Cushman, Darby and Cushman, American Security Building, Washington 5, D. C.

• 1941 •

Donald L. Boyes, who attended the Institute in 1940 and 1941 on an Alfred P. Sloan Fellowship, has been appointed general manager of the Hyatt Bearings Division of General Motors at Harrison, N. J. A native of Hastings, Mich., he was graduated from the General Motors Institute in 1932, and progressed through the General Foundry Division in Saginaw as assist production manager, assistant sales manager, manufacturing superintendent, general sales manager, and production manager up to the time of his most recent promotion.

As part of the program of a meeting of the American Meteorological Society, John P. Webber of the Blue Hill Observatory presented color movies of the Worcester tornado of last June.

New address changes: John W. Brumbaugh, New Brunswick, N.J.; Leslie Corsa, Jr., Mill Valley, Calif.; Maneck, N. Dastur, Cambata Building, Bombay, India; Michael Driscoll, Brookline, Mass.; Odon H. Godart, Brussels, Belgium; Lieutenant Colonel William F. Hart, Jr., HQ. Engr. USAREUR, A.P.O. 403, care of Postmaster, New York City; Mrs. James T. Herrington, Jr. (nee Louise Houssiere), Jennings, La.; Commander Camille J. Kosztyla, Ship Repair Unit 2, U. S. Naval Submarine Base, New London, Conn.; Mrs. La Ru Barker Lynch, Webster Hall, Exeter, N.H.; Donald McDonald, Mt. Prospect, Ill.; Donald D. Sarff, Lamp Division, General Electric Company, Seattle, Wash.; Walter L. Threadgill, Lanai City, Hawaii. — IVOR W. COLLINS, *General Secretary*, 28 Sherman Road, Greenwood, Mass. JOHAN M. ANDERSON, *Assistant Secretary*, Saddle Hill Farm, Hopkinton, Mass.

• 1942 •

Alan Katzenstein dropped us a note just recently to announce that he has left the ranks of eligible bachelors. On November 8, 1953, he was married to the former Rhoda M. Kaplan of Larchmont. And, incidentally, he is no longer with the Air Research and Development Command but is back in civilian life.

Among the members for 1954 of the committees for the National Advisory Committee for Aeronautics are Robert C. Seamans, Jr. (Stability and Control), Associate Professor of Aeronautical Engineering, and Glenn C. Williams (Combustion), Associate Professor of Civil Engineering. A short note from Charlie Speas tells us that he is busy as can be and is now with Sun Tube Corporation of New Jersey (toothpaste and other drug containers) working on new products. In turn he passed along a card from Carl Jealous who is on the lookout for speakers for alumni meetings. Carl has recently been elected president of the M.I.T. Club of Eastern Tennessee. Congratulations and best wishes.

What started out to be a business trip to New York to the Photographic Show to

introduce the Hico-Lite Electronic Flash to 50,000 breathless amateur photographers turned out to be an excellent opportunity to congratulate Bob and Rhoda Greenes on the birth of Stacey. My notes say seven pounds, 13 ounces. (I'm not sure whether she arrived at 7:13 A.M., or checked in at seven pounds 13 ounces, but it was on Tuesday, February 16.

This past month has seen a lot of long distance moving – Charles Stempf from Washington, D.C., to Madrid, Spain; Mrs. Lisa M. Finney from Rome, Italy, to the Hague, Netherlands; Frank Hall, Jr., from Buenos Aires to Mountain Lakes, New Jersey; and Charles Ruckstuhl, Jr., from California to Wilton, Conn. Other fireside changes bring the Jim Sternses to New Rochelle; the Bernie Driscolls to Newton Center, Mass.; Fairfield Stone to Bernardsville, N.J.; Anthony Sperduto to Newton Center; Rex Beisel, Jr., to Stratford, Conn.; Tom Crowley to Sewickley, Pa.; and Donald Devoe to Arlington, Mass. Philip Fox has moved to Poughkeepsie, N. Y.; Richard Heldenfels to Warwick, Va.; and Mrs. Robert Howard, Jr., to Kansas City, Mo.; Irv Kotlier to West Roxbury, Mass.; Harry Paletz, Jr., to Gary, Ind.; and John L. Rothery to Concord, Mass. I guess everyone who comes to Boston lives in the suburbs – mostly because the Hub City's tax rate is just too high. – LOUIS ROSENBLUM, *Secretary*. Photon, Inc., 58 Charles Street, Cambridge 41, Mass.

• 1943 •

A card from Burt Angell informs us that he has recently moved from Philadelphia to Daisy Lane, Schenectady, N.Y. He is employed as a development engineer in the general engineering laboratory at General Electric, and was formerly with the Baldwin-Lima-Hamilton Corporation.

Reverend Thomas J. Smith, S.J., who took his graduate degree with our Class, was in charge of the third annual regional school for training monitors for atomic defense, held at Holy Cross College last month. Rev. Smith is head of the physics department at Holy Cross, and is monitoring consultant to the Massachusetts Civil Defense Department. This school instructs persons to detect and eliminate radioactive substances caused by atomic explosions.

Dr. John P. Longwell has been appointed head of the Process Research Section in the Process Division of the Standard Oil Development Company of Linden, N.J. John received his doctorate in chemical engineering with our Class. Most of his work has been in the field of combustion, and he has authored a number of papers relating to this subject. He is a member of the American Rocket Society and is presently serving on committees of the National Advisory Committee for Aeronautics.

New addresses: Tom Bennett, 113 Tillotson Road, Fanwood, N.J.; Clyde A. Booker, Jr., 1337 Singer Place, Wilkinsburg, Pa.; Charles B. Dale, 408 East Kingsley Street, Ann Arbor, Mich.; Henry D. Ferris, 171 Meisner Avenue, Lighthouse Hill, N.Y.; John E. Guillotte, 84 Forest Hills Parkway, Newark, N.J.; Dr. Ward J. Haas, 1005 Greenway Boulevard, Falls Church, Va.; B. David Halpern, 373 Merriam Avenue, Leominster, Mass.; Dr. Mary V. McDermott, Children's Hospital, Detroit, Mich.; Dr. Eugene E. Magat, 417 Delaware Avenue, McDaniel Crest, Wilmington, Del.; Dr. Kenneth C. Vincent, Armour's Research Foundation, 35 West 33rd Street, Chicago, Ill.; and Frederick A. Wolff, 12 Court Drive, Lancaster Court, Wilmington, Del.

I had a fine conversation recently with Dick Foley, who lives in my neighboring Town of Manchester, and works at Pratt and Whitney Aircraft in Project Engineering. Dick and his wife, Ruth, have three children, John, eight, Ann, five, and James, two. They bought a large, older home about five years ago and have been redoing it over the course of years.

You may have noticed the newspaper articles about the new Bell Aircraft Convertiplane, which has been developed under the guiding hand of classmate Bob Lichten as project engineer. – RICHARD M. FEINGOLD, *Secretary*, 49 Pearl Street, Hartford 3, Conn.

• 2–44 and 10–44 •

With our 10th reunion only about a month away, right now is your last chance to get on the bandwagon for Lenox, if you haven't already made your reservations. Here is an early list, dated March 15, of those who have said they would definitely be there: Pierre H. Boucheron, Robert G. Breck, Jr., Burton A. Bromfield, F. Scott Carpenter, King Cayce, John Chamberlain, Lee G. Corton, Louis R. Demarkles, G. C. Docal, Lee C. Eagleton, John B. Gardner, Robert Price Dodds, Richard F. Garrard, John Granlund, A. P. Hildebrandt, Richard H. Hinchcliff, Martin Hird, Robert V. Horrigan, John L. Hull, E. R. Jonash, Herb Knape, Jay M. Kogan, John A. Lednicky, T. Gary Loomis, Arnold Mackintosh, Jr., Garry Myers, Jr., Kenneth W. Nelson, Henry M. Paynter, Robert D. Peck, Egidio A. Picardi, Peter M. Rinaldo, C. William Ritterhoff, C. Reginald Robba, Edwin G. Roos, Kenneth G. Scheid, Spencer A. Schilling, Norman Sebell, Joseph Shrier, Frederick P. Stearns, John Stevens, Harlan D. Taylor, Lewis Tyree, Jr., Albert B. Van Rennes, Alden A. West, Robert Hall Wood, Chester H. Woodworth.

An additional 107 classmates said they were hoping to come, and certainly by now many of them have made it definite. These turnout figures all add up to a really successful reunion.

Sometimes a Class Secretary finds it necessary to cut his class notes very short because of the absence of news from class members. This time we have so much that it will have to come in at least two installments, with Burt Bromfield taking care of the June notes. Here goes for this month: Robert Reilly, who received his M.B.A. at the Wharton School, has recently been named an industrial analyst for the Atlas Powder Company, having previously been with Gulf Oil and with Atlantic Refining. Jim Weaver has also joined Atlas Powder in the Planning Department. Charles Paul is staff assistant to the Budgetary Control Director of North American Aviation, Inc., Los Angeles. He and the former Anne Sofie Pedersen, of Bergen, Norway, were married in 1951. Walt Gray, who was present at the joint class dinner held in January at the M.I.T. Faculty Club, is section head in the Computer Department of the Raytheon Manufacturing Company. Walt is the father of two children. Gil Krulee, who earned his Ph.D. in Industrial Relations and Psychology from Tech in 1950, is assistant professor of psychology at Tufts College, engaged in research on human engineering problems, for the Navy. Edward Radford, Jr., is on the staff of the Harvard School of Public Health, serving as an associate in physiology.

A letter from Reunion Committeeman Bob Peck gives some interesting news: "Was married in December '52 to Nancy Hill of Wellesley Hills and am living in Hingham with a dog, two cats, and a dozen apple trees. Went to work in Boston for Johns-Manville five and a half years ago, where I am now manager of the Industrial Insulation Department of the Boston office. Travel around New England, occasionally New York City or farther West . . . At my wedding were Jack Toland'47, Bob Storrs, now '47, and Norm Sebell. Tolo is the father of three girls, lives in Spokane, Wash., where he works for Ryerson Steel. Storrs lives in Lockport, is still single, and the best damn piano player available if anyone needs one at his wedding. Norm is in Syracuse, N.Y., working with a pottery company, is married, has a son and a daughter. Norm returned to the Army at Springfield Armory for a year and a half, and was released about a year ago. Jim Buchanan and Marge were in Boston celebrating 10 years of marriage last June. (I think he is about the longest-married man in the Class.) They look as fine as ever and are living in Green Bay, Wis., where Jim is treasurer of Northern Paper Company and has been very much in civic affairs. Have also seen Jack Hardy, some months ago. He is a Texan for fair, has a charming wife, lives in San Antonio."

Henry Bowes is a project engineer with the Electric Boat Division of the General Dynamics Corporation at Groton, Conn. Betty and he and the three girls are living in Old Lyme, Conn. He describes Electric Boat as another "M.I.T. Alumni Club" and lists Dick Hatfield and John Taft among his associates who are also classmates. Henry reports having seen Carl Soderberg, Jr., reported to be an experienced European traveler, in New York, where he's now working. Also reports that Len Carlson is working on the production of military items with the Bulova Watch Company. Nicholas Grant, who is a member of the Tech Faculty, was recently appointed to the Subcommittee on Heat Resisting Materials of the National Advisory Committee on Aeronautics, for the year 1954. Bud West, having completed a two-year active duty tour with the Air Force as liaison officer at the M.I.T. Division of Defense Laboratories, is now an industrial engineer with the American Steel and Iron Division of the U.S. Steel Company. Warren Delano is working at Tech as a research assistant while seeking his Sc.D.

Horace Binney writes from New York that he has traveled widely in the last year or so attending trials of various ships, as an assistant designer and vibration specialist for Gibbs and Cox, Inc. Clayton

Depew, living in Eustis, Fla., is the general manager of the K. A. Depew Materials Company. Clayton states that he would be glad to see anyone passing the plant on Route 441 between Mt. Dora and Tavares. — KENNETH G. SCHEID, *Acting Secretary,* 45 Linnaean Street, Cambridge 38, Mass.

• 1948 •

We received some interesting news on a new business being started by Bob Fier and Herb Frankel. Here is the entire news release, for your information. "Acetogen gas for precision metal cutting, brazing, and silver soldering has been made available in New York City, Conn., and surrounding areas by the Acetogen Cutting Gas Company, Inc. Acetogen gas provides fast preheating times, produces smooth cuts with sharp edges, causes no appreciable hardening of cut surfaces, and leaves no adhering slag.

"Acetogen gas is especially suitable for brazing and silver soldering operations because the characteristics of the flame enable uniform heating of large areas of metal with no tendency for melting, burning, or change of temper. Acetogen gas, one cylinder of which is equivalent to four cylinders of acetylene, makes possible a more economical operation due to lower cost of gas consumed and savings in cylinder handling. The use of Acetogen gas assures a safer operation because it will not blow back, blow out, or explode. The gas burns with a non-incandescent flame, is non-toxic and produces no soot or carbon deposits.

"Acetogen Cutting Gas Company, Inc., has been formed by Robert D. Fier and Herbert A. Frankel['50]. Both men are graduates of the Massachusetts Institute of Technology and have been active in the chemical and metallurgical fields. Mr. Fier was most recently connected with the Standard Oil Development Company, and Mr. Frankel was formerly general manager of Foundry Services, Inc. Information concerning this product may be obtained by writing to Acetogen Cutting Gas Company, Inc., at 26 Court Street, Brooklyn 1, N.Y., or calling MAin 4–0200." Here is another news release which we print in its entirety: "Pusan, Korea – Army Second Lieutenant William D. Virtue, Jr., 25, whose parents live at 128 Betsy Brown Road, Port Chester, N.Y., recently arrived in Korea for duty with the 226th Ordnance Base Depot at Pusan. He will serve as legal and public information officer at the depot which furnishes and maintains vehicles, weapons, ammunition and other ordnance equipment for U.N. security forces in Korea. Virtue was employed by the Texas Company in New York City before entering the Army in February, 1953."

Two weddings were reported to us this month, Charles M. Tenney to Lederle Stearns of Longmeadow, and Malcolm Reed to Barbara Warren of Montpelier, Vt. Also, we have some news from Bob Cadieu who says, "Started working in the Methods Department of the Aviation Gas Turbine Division of Westinghouse Electric Corporation here in September, 1953. Was married to Mary Frances Lunch, Class of '48, Purdue University, in Detroit, June, 1951."

I hesitate to make another plea for correspondence from classmates but I'd like to point out that there is no more efficient way to communicate with one's classmates than by having a letter reproduced in The Review notes. So, let's be efficient, men! — WILLIAM R. ZIMMERMAN, *Secretary,* 3130 North Lake Shore Drive, Chicago 14, Ill. RICHARD H. HARRIS, *Assistant Secretary,* 26 South Street, Grafton, Mass.

• 1949 •

Only one month away! From what we hear via the Reunion Committee, it's going to be the greatest Fifth M.I.T. has seen in many a year. Better not miss it, lads; see you all in a month. From our correspondence we see Herbert Riegel, who was with C. F. Braun and Company in Alhambra, Calif., recently joined Socony-Vacuum and is employed in their Research and Development Lab in Paulsboro, N.J. Richard Davidson has joined the engineering staff of the M. B. Manufacturing Company, of New Haven, Conn. Since we last heard from Dick, a daughter, Marilyn, arrived. We also received notes from Jesse Clamp who is personnel manager for Armour in Chicago, and Al Kenrick who is a student at the Harvard Business School. Another '49 man at the "B" School is Thomas Moranian who is working for a D.C.S. in commercial science.

Charles W. McCutchen was recently promoted from research engineer to the position of laboratory project leader in the electro-chemical engineering department of the Dow Chemical Company's Texas Division at Freeport. Walter May has been doing exploratory research in the behavior of fluidized solids at Standard Oil's research center at Linden, N.J. Walt recently reported on his work at the New Jersey meeting of the A.C.S. A letter via Tom Hilton from Joe Stern informs us that Joe is presently working for the School of Fisheries at the University of Washington, Seattle. Joe stayed on at Tech to get his M.S. and Ph.D., was married in August '50, and became a father in January of '53. So far, Joe will be traveling the farthest to make the reunion, nearly 3,000 miles.

William Lemnios was married on January 24 to Angelina Pazar of Newburyport. Bill went on to the University of Illinois to get his M.S. and is now employed at Tech as a physicist. Arthur Nersasian just completed his work for his Ph.D. at the University of Michigan and recently went to work for DuPont. Hope to see you all at the Reunion. — CHARLES W. HOLZWARTH, *Secretary,* 1426 Grace Avenue, San Jose, Calif.

• 1950 •

How many members of our Class have you accidentally run into during the past few months? I don't know whether it's the fact that I'm on the lookout for new people or just that I'm plain lucky, but I run into more people in the strangest places than any other person I know. Let me illustrate – one of my roomates in Building 22 and Goodale Hall was Whitty Whitman. The last I saw of him was at his wedding in May, 1952. The last I heard of him was that he was out in Indiana teaching raw recruits the fundamentals of infantry warfare. Well, on Saturdays Ruth and I and the young one do our shopping at the big Stop and Shop down the Drive from Tech. While dutifully pushing my shopping basket through the maze of aisles who should I meet but Whit and his wife Joyce. He is out of the Army and temporarily working at the Instrumentation Laboratory at Tech pending his resumption of studies at Tech this summer.

Coming out of church one bright sunny Sunday I spotted Bob Cesari. The last time I saw Bob was back in the spring of 1952 on the midnight special out of Pennsylvania Station in New York. We were headed back to our respective camps and figured to just about make reveille. Bob's attending Harvard Law School and is now a married man having said "I do" to Lucille Azzarone on April 8, 1953. Lucille is a sister of Maria Azzarone'50.

The house I live in is situated on a fairly steep hill and on a clear brisk Sunday afternoon in January the Weaver family headed out for a Sunday drive when whom did we see but Randy Hogan'49. His mother-in-law lives around the corner from us, and Randy was sleigh-riding with his little nephew. Randy and Elly have a little girl, aged one, and they are living in Framingham, Mass. – for the benefit of the Class of '49 who occasionally read this column.

Coming off the Mystic River Bridge on another Sunday drive and looking out at the mass of steel that is shaping up as the Boston Artery Highway, I mentioned that within a year we would be able to get to the other side of town within a matter of minutes. However, this was the present and I hit one of the worst traffic jams within my recollection – 40 minutes later I reached North Station (a normal five-minute run from the bridge). It was not a total waste of time, however, because half way across the Charles River I noticed a nice new Chevy convertible with a very familiar personality behind the wheel, Joe D'Annuzio. The snarled traffic gave us a chance to chat a bit and exchange news. Joe spent 18 months in French Morocco building air bases but he's back in the States for good now, building the Garden State Highway in New Jersey. He is engaged to a Boston girl and they are planning a May wedding.

Sunday afternoon heading for Framingham along Route 9 I spotted a soldier thumbing a ride. Tony Tabak sporting the uniform of a P.F.C. was headed back to Frankfurt Arsenal in Philadelphia. Tony has another six months of Army life left, but he says he has no complaints. He has a good assignment and the Army is utilizing him as a metallurgist, his chosen profession. He is planning to get married in May to Eleanor Sliwa, a recent graduate of Boston Teachers College. Enough about people I have met. Write and tell us about whom you have seen recently.

We had a good turnout for the Midwinter Alumni Dinner at Walker Memorial, and I'm sure that all those who attended enjoyed the show that Research Row put on for us after the Dinner. I managed to see the following members of our Class at the gathering: Mike Fitzmorris, Jerry Fritch, Mal Green, John Kern, Charles Levy, Frank Parisi, Bill Plouffe, Nat Roosin, Lindsay Russell, Jack Simons, and, of course, Bob Mann.

Mal Green is working for Ruge de For-

rest in Cambridge and in January he announced his engagement to Susan Horwitz, a Long Island girl who is currently attending Wellesley College. The wedding date is set for June 20, 1954. Charles Levy and Jerry Fritch were accompanied by their wives and the young ladies seemed to enjoy the demonstrations of the three research corporations on the Charles River. Charles is working at the Watertown Arsenal and also manages to squeeze in a couple of subjects at M.I.T. each semester. Jerry is an electrical engineer for Calidyne Company in Winchester.

Nat Roosin has evened up the distribution at his household. His daughter (now two years old) has a baby brother, Joel, born in January, 1954, weight eight pounds, nine ounces.

Ed Berringer is now at the Harvard Business School and James Burke is at Graduate School at Tech. Joe King is working for Simplex Wire Cable Company, and he and his family are living in Belmont, Mass. James Lydon is also a Belmont resident and he is employed with the Boston Edison Company. Charles Govatsos hasn't wandered far from Tech. He's with Polaroid Corporation just across the street from the Institute. Henry Johnson, a Watertown resident, is working at the Hood Rubber Company, also located at Watertown.

A letter from John Malloy who is living in Lansing, Ill., tells of his "doings" since he graduated and since he tells it much better than I could, I'll quote him: "My best news is the establishment of a partnership between Nancy Roberts, Allston, Mass., and John Malloy, Chicago, Ill. Contract signed on February 14, 1953, and Bob Abbanat, Course X, was best man. My marriage is the one pleasant consequence of neglecting studies for social life every now and then at Tech. Since leaving the ivy-covered halls I have been doing pilot plant work for Standard Oil (Ind.) at Whiting, Ind. Most of my work has been on ultraforming their new catalytic reforming process. Bob Abbanat also works for Standard. We get together frequently and do our bit to give National Distilleries a profitable year. Charlie Walker also works with us. He's from '49 but some of the Course X men may remember him.

"I met Jim Miller, X, at a convention in Toronto last April. He, too, met his wife via the neglected studies route and now works for American Cyanamid at Bound Brook, N.J. Paul Lobo, X, just passed through Standard, job hunting in January. Paul is getting his Ph.D. from Michigan."

Thanks a lot for the information, John, but Nat Roosin claims that Jim Miller is with Calco in Philadelphia. This is an invitation to Jim, or anyone else to write and straighten things out as to where Jim is working. A card from Bob Wohler tells how he and his wife Helen welcomed their second daughter, Marianne, on December 12, 1953, at the Norwood Hospital. Their first daughter, Elizabeth Ann, was a year old, when Marianne arrived. Bob served a hitch in Korea but he is back in civilian clothes again and working for the Polaroid Company in Cambridge.

Henry Quigley is still working for Du Pont but has been transferred from Wilmington, Del., to their Richmond, Va., office. Charles Sherman has changed his position from Tracerlab, Inc., Boston, to the U. S. Navy Underwater Sound Laboratory, New London, Conn. John Outwater is now with the M.I.T. Industrial Office. Gabriel Stilian who was on the executive staff of E. R. Squibb Company in New Jersey has accepted a position as assistant manager of the Chace Curtain Company of Fall River, Mass., a division of Bartmann and Bixer of New York. Gabe has been quite active both professionally and politically since he left Tech. Professionally he has authored a paper on "Contemporary Thought in Work Measurement" presented to the New York Chapter of the American Institute of Industrial Engineers, and is coauthor of an article entitled "A Quick New Way to Get Down Time Data" for *Factory Management* magazine. He has been considered by political observers as one of the promising young leaders in New Jersey State G.O.P. ranks. He first became active as college advisor for the National Citizens for Eisenhower Committee, later becoming state chairman for the first voters for Eisenhower and County Chairman of the Citizens Young Voters for Eisenhower.

Roger Graham received his Ph.D. from the University of Chicago where he was doing chemistry research under a scholarship of the Atomic Energy Commission. Roger is married to the former Polly Anderson of Bridgeport, Conn. Roger is now associated with Rohm and Haas in Philadelphia, Pa. Alan Bates is working for the Celanese Corporation of America in Summit, N. J., doing design work in the plastics field. Last June he became the father of a baby girl named Stephanie Lynn. The A. D. Little Company has two of our classmates — Richard Bolin, and Pete Baker, working for them here in Cambridge. Project Lincoln also has at least three of our boys: Robert Berg, Michael Wall, and Clif Swanson. And while we are on the subject out at Monsanto's plant in Springfield, Mass., are Leroy White, Robert Miller, and Charles Magarian.

The Jet Stream, an immense air current that ranges over the Northern Hemisphere at high altitudes and reaches speeds of 300 miles per hour, is being studied intensively for the first time by the Air Force Cambridge Research Center Scientists. Robert Rados, a graduate meteorologist, from our Class, is the project field director for the reseach project. Now in its early stages Project Jet Stream is expected to furnish much valuable information to the scientists by the time all the data have been compiled and studied.

Now for a little news from Dan Cupid. Carl Mellin and Dorothy Hartshorn became engaged in February, 1954. Carl is associated with the F. W. Lombard Company of South Ashburnham, Mass. On December 19, 1953, Lois Gnong, of North Abington, and Robert Haslam were married at the Church of the Holy Nativity, South Weymouth. Bob is now an officer aboard the *American Jurist*, a cargo passenger ship. Elinor Bukun of Somerville, N. J., and Donald Lea were also married on December 19, 1953. The ceremony was performed at St. Paul's Church, Bound Brook, N. J. Don is employed with the Cyanamid Company at Stamford, Conn.

Sterling Brisbin and Joan Cooke of Woburn, Mass., said "I do" at an impressive ceremony at St. Anthony's Church, North Woburn, on February 28. Jack Card was best man for Bris and the guest list showed that Frank and Kay Ruccia, Jack and Liz Card, Paul and Alice Kiesling'52, Jim Watt, and John and Ruth Weaver were present at the reception at the Shaker Glen House in Woburn. Frank Ruccia is still with Monsanto Chemical Company, but he expects to be transferred to their St. Louis plant this summer. Jim Watt was stationed in Heidelberg, Germany, with the Army Engineers for a year and a half, but was discharged last summer and is now with Charles Maguire in Providence, R. I.

A card from Jean and Phil Byrne, 3d, announces the arrival of Edward Robert Byrne at 2:46 P.M. on February 25. It's a second boy for the Byrnes. Before signing off I should like to inject a plug for Alumni Day this June. If you are in the vicinity of Cambridge on June 14, make plans to attend this happy gathering of classmates. — JOHN T. WEAVER, *General Secretary*, 18 Buena Vista Park, Cambridge, Mass.

• 1952 •

It is with the deepest regret that I pass on to you the contents of a report recently received announcing the death of Dave Davis on June 11, 1952. Dave, whose home was in Clearfield, Utah, was studying for his degree in Chemical Engineering.

Other news received include the following marriages: June Marie Draper of Cambridge, Mass., was married to Al Andrus on January 17 in Boston. The couple are now residing in Redding Ridge, Conn.; Al is presently engaged in television work in Bridgeport, Conn. Christine Young of Wollaston, Mass., was married to Lieutenant Chuck Sorenson on January 24 in Quincy, Mass. The Sorensons are presently living in Anniston, Ala., where Chuck is serving with the Chemical Corps Doctrine Board at Fort McClellan. *Engagements:* Sarah Farley of Camilla, Ga., was recently engaged to Ensign Bob Burditt. Bob is presently stationed at Seattle, Wash.

And *Letters:* Stan Sydney writes: "There should be quite a few '52 men at Harvard Business School next fall. I met Sandy Kaplan at Tech recently while he was in town on a furlough from his Missouri Air Force Base and mentioned he was considering applying to the school. Seymour Weintraub also has an application pending. Tom Romanowski wrote recently telling of his exploits since graduating. He is married now and studying as a research assistant at the Case Institute of Technology in the Physics department. His wife, Carmen Des Rochers, is a Canadian girl he met in Boston. Gil Mar, a Course IX man, is working with the Foster Wheeler Corporation in Dansville, N. Y., as an associate project engineer. His wife gave birth to two boys this past January. Paul Ries is now stationed at the Ernest Harmon Air Force Base in Newfoundland. He is engaged to a girl from Providence, R. I., Betty Higgins. She is at Tufts College at the present time. They are planning on a June wedding. Paul has been involved in the operation of the base

laundry and dry cleaning plant. Lieutenant Maury Davidson is serving with the Army in Korea. George Weiss is also serving overseas. I am planning on finishing up here at Tech in June and will probably go into the Army on July 1 or shortly thereafter."

Burge Jamieson, Jr., writes: "I've just started a 20-week course here at Aberdeen in Fire Control; I'll be through with the course at the end of June. I'll then have three months more of training at the end of which I'll probably go overseas as the commanding officer of a Fire Control Detachment. Dan Sullivan is here assigned to the School (Ordnance) Troops as the troop information and education noncommissioned Officer. Lieutenant Ted Maione (Signal Corps) is here assigned to the Ordnance Corps and is one of my instructors in Fire Control. Lieutenant Chuck Doverspike is assigned here to T.O.S. Operations and Training. His boss is captain (once sergeant) Sam Gordon." Thanks.

Among the M.I.T. Alumni presently employed at Hamilton Standard, division of United Aircraft Corporation, at its new plant in Windsor Locks, Conn., are the following '52 men: Jerry Pickett, metallurgist; John Warner, design analytical engineer; Don Coakley, sales engineer; Bob Jeffery, liaison engineer; and Ralph Thornton, sales engineer. From the *Shipping World* comes word of Hans Meyer and the work he is doing studying the stresses of ships' hulls while asea. It appears that the results of Hans' work may revise the conventional theories on ships' stresses. The Norwegian shipping people have begun to incorporate many of the findings into their ship designs. Herb Brody, a food technologist, was the subject of an article in the Northampton, Mass., *Hampshire Gazette*. Herb is at the University of Massachusetts trying to find a way to preserve fat and vegetable oils and give them a more stable taste and appearance. One of the results of his work would be crispier and tastier potato chips.

Odds and ends: Mike Duggan recently received his master of science degree from Ohio State University. Joe Gavin and Bill Hartley together with Ed Facey are enlisted men at the Army Chemical Center, Md. Dan Lycan was recently promoted to First Lieutenant. Dan is a platoon leader in the 354th Engineer Construction Battalion at Nellingen Air Field, Germany. Quite a few others have joined the Order of the Silver Bar Wearers: Gus Rath, Phil Schirm, Lou Karvelas, Sam Mitchell, and innumerable others I have not heard about; yours truly, too. I recently met Bob Lurie and his missus and Newt Shanbron at the 59th Street subway station in New York City. Bob and Newt are both still at the Institute; Bob is working for his doctorate in Chemical Engineering; Newt for his engineer's degree in Civil Engineering. Newt expects to join his brethren in the Army sometime this June. I also ran into George Roy on a subway car. George is working as a civil engineer with the New York Port Authority. Also with the Authority is Cliff Herdman. Dirk Plummer is now straightening out the operations at the Chemical Corps Phosphate Development Works in Muscle Shoals, Ala. Steve Learnard is in Korea with a Chemical Service Company. Dick Heitman with the Operations Research Group and Manny Pandos with the Engineering Agency, both at Army Chemical Center, Md. I saw Ed Margulies in Boston last week end; Ed is still at the Cornell Medical School. That's about it for the month. — STANLEY I. BUCHIN, *Secretary*, 150 Tryon Avenue, Englewood, N. J.

• 1953 •

The company barber is in the squadron tent that we officers call home, and he has an unusual treat in store for us. Now that the generator has been repaired, the barber can use his electric clippers. I have a little free time this evening after inspecting the guards so I decided to try my hand at compiling the mail that has finally caught up with me.

Jul Greenebaum, who has completed seven weeks in the 141 Engineer Equipment Maintenance Course has been of tremendous help in gathering information concerning the boys in the Washington area. There are seven of our former classmates at Arlington Hall: Tony Zaia, Dick Witty, Burt Blum, Dick Singer, and Don Fischer. Since Jul and I finished in 83rd Basic Course, eight or so more classes have "run the gauntlet." Bod Godfrey has his assignment with 7th Engineering Aviation Brigade in Europe. Bob was married to Jeanne White of Rye, N. Y., on December 5. – Bill Hearne goes along with Bob Godfrey in the 7th Engineering Aviation Brigade, and I may see Mike Levy over here after he completes another course at Belvoir.

Dick Lockhart, Dick McCarthy, and Edgar Stolfer, Jr., all have assignments in the States. Dick Lockhart with the 308th Construction Group at Camp Gordon, Va., Dick McCarthy with 423rd Construction Group at Camp Rucker Ala., and Ed is with the 7021st Army Service Unit at Ft. McNair in D.C. The following men are in the 88th Engineering Officers Basic Course — Bob Cotton, Marty Wobl, Don Torinelli and Ken Larson. The men from Tech in 90th E.O.B.C. include Bruce Beckley, John Becker. Jeff West, Frank Hill and Eugene Belkin (Frank and Gene received M.S. degree last June). Jim Howard after finishing his E.O.B.C. is now taking the equipment maintenance course.

I received a letter from a gentleman at the Johns-Manville Corporation. W. Joseph Littlefield'17, Comptroller for Financial Analysis, might be interested in work concerning the analysis of operations. The brochure which Mr. Littlefield was kind enough to enclose states that it concerns "the opportunities in the finance organization for men and women interested in contributing to the solution of the Company's industrial problems." I think your best bet for further information would be direct contact with Mr. Littlefield at the following address: Comptroller for Financial Analysis, Johns-Manville Corporation, 22 East 40th Street, New York 16, N.Y.

I received a note from Stan Brink telling of his position as assistant bridge engineer with the Oregon State Highway Commission. One of our fellow students in the graduate school, David S. Swanson spent an enjoyable summer in Goteborg, Sweden, at the Swedish Institute for Food Preservation Research. He is presently working in the Development Department of the Chemical Division of the Procter and Gamble Company. Landry Slade is studying for an M.S. degree in organic chemistry at the University of Virginia. Back at the Institute for another year, Joseph Urner is looking for a master's degree in Course XIV.

More of the boys have been biding their time waiting for some definite word on their Air Force orders. Mark Schupack started working for Sylvania Electric Products after graduation, received the orders delaying his Air Force induction about three weeks later, went back to Sylvania, and should start his tour in the Air Force in April. Dick Lindstrom is in about the same position; his work at Lard Manufacturing Company, Erie, Pa., is such that it has been in the interests of the Air Force to defer him.

Richard Salter, who is in his fifth year at the Institute, was the first recipient of a new fellowship in mechanical engineering set up by the Barium Steel Corporation. David A. Rogers is working for the U. S. Navy in the Puget Sound Naval Shipyard. Two more notes on our former graduate school colleagues, Dr. James S. Coleman, who received his Ph.D. in physical chemistry last November, is now employed at the Los Alamos Scientific Laboratory. Dr. Coleman's efforts will be centered in Chemistry and Metallurgy Division. Dr. Warren N. Baxter is now with the Research Division of the Du Pont Company's Polychemicals Department.

Well, on to the newly-weds. Lieutenant Donald Fischer and Miss Lea C. Dargan. The bride is a graduate of Vesper George School of Art. Lt. Fischer is in Signal Corps stationed in Washington, D.C. Bob Chapman and Beverly Emery were married in January. Mrs. Chapman has completed a post graduate course in obstetrics at the Boston Lying-In Hospital. Bob, previous to his Air Force duty, was employed by the Juno-Maskel Construction Company at East Hartford. Well, folks, I've got a long day tomorrow so let's "call it quits" for this month. — LT. VINSON W. BRONSON, JR., *General Secretary*, 04003242, Company B, 2nd E.C.B. 2nd Infantry Division, A.P.O. 248, Care of Postmaster, San Francisco, Calif.

Welding is easy with flexible TIREX

Welding for hours on end puts a terrific "drag" on the operator's wrist. When his wrist tires, his work slows down and so do your profits. With present material prices and labor costs, it's good business to keep production high.

This requires the right welding cable. Welding cables must have characteristics not found in other portable cables. They must be unusually flexible; they must be safe; they must strip clean.

Simplex-TIREX Welding Cable meets all of these requirements. Thousands of hair-fine, closely stranded copper wires permit extreme flexibility. A paper separator over the conductor allows clean stripping and supports the strands.

The Selenium Neoprene Armor provides outstanding resistance to abrasion, acids, flame, grease, moisture, and oil. It is not easily cut, and provides insulation with essential electrical stability.

To get more for your money by decreasing "drag" and increasing welding efficiency, buy Simplex-TIREX Welding Cable. For long life, all Simplex-TIREX Cords and Cables are cured in lead. To keep your production and profits at a high level, specify and be sure you get Simplex-TIREX Welding Cable. Your nearest Simplex distributor probably has this tough, flexible welding cable in stock.

Simplex WIRES & CABLES

TIREX CORDS AND CABLES *are made only by the*

SIMPLEX WIRE & CABLE CO., 79 Sidney St., Cambridge 39, Mass.

"with the G-R Vibration Meter we were able to prove conclusively..."

"Equiflex" shock mounts under investigation support the weighted-down wooden box on a standard vibration table. Table vibrates at any set frequency from 10 to 60 cycles per second. Type 761-A Vibration Meter reads directly the displacement, velocity, or acceleration of the shock-mounted box to determine operation under actual working conditions.

The Ucinite Company, in the course of developing a new vibration isolator which absorbs vibrations both vertically and horizontally, put their product through exhaustive tests. To assure performance and over-all quality . . . measurements were made with the General Radio Type 761-A Vibration Meter.

Ucinite development engineers have this to say:

"With the G-R Vibration Meter, we were able to prove conclusively that Ucinite's "Equiflex" mountings provide isolation of vibration over a wide frequency range. We found these mountings, with their all-metal supports, will withstand 15-G shocks without damage and will keep equipment captive up to 30 G's.

Where a large number of accurate vibration measurements must be made with a maximum degree of convenience, a precision instrument designed particularly for vibration measurements is definitely needed. The Vibration Meter filled our needs well. Because it measures directly the r-m-s displacement, velocity and acceleration, we were able to quickly and accurately ascertain the vibration efficiency of the "Equiflex" mountings during all stages of design."

Type 761-A
Vibration Meter $490

measures displacement, velocity, and acceleration of mechanical vibrations in machines, parts, and structures.

RANGE

Displacement—16 micro-inches to 30 inches, rms

Velocity—160 micro-inches per second to 300 inches per second, rms

Acceleration—0.16 inch per second per second to 3900 inches per second per second, rms

Write for the G-R SOUND AND VIBRATION BULLETIN which describes our complete line of sound and vibration meters and analyzing equipment.

Since 1915—

Manufacturers of Electronic Apparatus for Science and Industry

GENERAL RADIO Company

275 Massachusetts Avenue, Cambridge 39, Massachusetts, U. S. A.
90 West Street NEW YORK 6 920 S. Michigan Ave. CHICAGO 5 1000 N. Seward St. LOS ANGELES 38

Admittance Meters ☆ Amplifiers ☆ Coaxial Elements ☆ Distortion Meters ☆ Frequency Measuring Apparatus ☆ Frequency Standards ☆ Impedance Bridges ☆ Light Meters Megohmmeters ☆ Modulation Meters ☆ Polariscopes Precision Capacitors ☆ Oscillators ☆ U-H-F Measuring Equipment ☆ Parts & Accessories ☆ Signal Generators Wave Analyzers ☆ Variacs ☆ TV & Broadcast Monitors Pulse Generators ☆ R-L-C Decades ☆ R-L-C Standards ☆ Unit Instruments ☆ Sound & Vibration Meters ☆ Stroboscopes ☆ Null Detectors ☆ Motor Controls ☆ Wave Filters ☆ V-T Voltmeters